

The Canadian Medical Association Journal

VOL. VI.

JUNE, 1916

No. 6

ONTARIO MEDICAL ASSOCIATION: PRESIDENTIAL ADDRESS

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IN accordance with the Constitution of the Ontario Medical Association, it is the duty of the President to address the annual meeting, setting forth the condition of the profession in the province. The difficulty confronting one at this time is not to find topics suitable for discussion, but rather to select from among the multitude of important matters which suggest themselves, those of most immediate and pressing interest, and attempt to consider them with due regard to their relative importance. While I deeply esteem the honour of having been elected to the presidency of this Association, one cannot but appreciate the difficulty of doing justice to the position, or of rising to the responsibilities and opportunities of so critical an occasion in our national and professional history.

We are meeting at a time pregnant with the most momentous issues since the dawn of the Christian era, under the shadow of the greatest calamity in history, with our Empire and her Allies engaged in a death struggle to uphold the cause of freedom and justice against a military despotism, which, in the guise of Kultur, is seeking world power with the ethics and by the methods of the barbarian.

Those who have admired, perhaps too highly, German learning, scientific achievement, energy and genius for organization, have lived to see all of these directed by an ambitious and cruel autocracy, abetted by subservient professors, clergy and publicists, and prostituted to the basest of material ends. As members of a profession which has acclaimed German discoveries that have saved thousands of human derelicts, we must hereafter charge the autocratic system which encouraged their scientific achieve-

ments with the subordination of all the resources and capabilities of the nation to an aggressive war, which has led to the slaughter of millions in the flower of manhood; and reflecting on this we shall in future be more appreciative of the blessings of democracy, even with its attendant muddling and inefficiency. Well may we pray to be delivered from the blessings of Kultur and efficiency if they must be acquired by the sacrifice of freedom, of honour, and of those principles of religion, ethics and morality which have served in the past as standards by which men and nations are judged.

In the presence of these great events monopolizing the attention and absorbing the energies of our people, all other interests fade into insignificance. And yet we must not neglect "the daily round, the common task," as we look with confidence beyond the present struggle, but prepare ourselves in every department of our national life for the stern competition of the period of reconstruction and advancement which will inevitably follow.

On this occasion we miss the familiar faces of many of our colleagues who in answer to their country's call are now on duty overseas, in the Motherland, in Flanders, France, Greece and Egypt, and we are proud of their record. "The members of the Canadian Army Medical Corps," as recorded by the official historian in describing the battle of Ypres, "rivalled in coolness, endurance and valour the men of the battalions who were their comrades."

Important duties also have fallen to those who are left behind, in organizing and manning the medical services of units preparing for active duty; in ministering to the medical necessities of the dependents of our soldiers, and not least, in giving their services for the restoration to health and usefulness of the sick and wounded who are returning from the front. The burden cheerfully undertaken by the medical profession of Canada has been a heavy one, and we believe has been creditably borne.

I feel assured indeed that I express the feeling of every member of this Association in saying that we regard it not only as a duty, but a privilege to do what we can toward the restoration to health and usefulness of our brave countrymen now returning, whose heroic deeds have won imperishable fame for themselves, and shed enduring lustre on our country. To them Canada may fittingly apply the words of the poet of the Yukon:

"I will not be won by weaklings, subtle, suave and mild,
But by men with the hearts of Vikings and the simple faith of a child;
Desperate, strong and resistless, unthrottled by fear or defeat,
Them will I gild with my treasure, them will I glut with my meat."

An unusual feature of the present meeting will be the military session arranged with the collaboration of the Military Hospitals Commission and the officers of the Army Medical Corps in this district. While there will be a number of papers on medical topics of present military interest, the chief purpose of the session will be a discussion of the "invalided soldier problem" in all its bearings, so as to bring before the doctors of the province the importance of the question and the aid which they can render toward its solution. That our efforts so far are not unrecognized is evidenced by a letter recently received from the chairman of the Military Hospitals Commission in which he says—"that the Government of Canada is indebted to the Ontario Medical Association for its interest and to the medical profession for the splendid spirit which they have shown."

If our deliberations assist in coördinating the military, medical, vocational and employment aspects of the situation, and in evolving a more efficient and uniform system of management in the various Military Convalescent Hospitals and subsidiary institutions, an important object will have been attained.

The war has brought us many disillusionments, has impressed many stern lessons, given us a wider national perspective, a keener vision of the responsibilities of citizenship and stimulated a wholesome spirit of sacrifice to the common good. Those who have seen the beneficial influence of military training on the development of the physique and discipline of our young men, whatever may be their views regarding compulsory service, are unlikely hereafter to overlook the advantages to the nation, not only in a military but in a material way, of compulsory military training. A properly trained and disciplined manhood will not only increase individual efficiency for civil duties, but will go far to solve the problem of national preparedness.

We are indebted to Professor Blackader for having brought forward another lesson of the war, viz., the question of drugs and medicinal agents from the national, economic and professional standpoints, a matter which should receive the serious attention of the Association. Who can estimate the influence on the present war of the amazing lack of foresight which permitted Germany to appropriate to her advantage the discovery of the aniline dyes by Sir William Perkins? This one shrewd deal added a billion dollars a year to the national wealth of Germany, increased immeasurably her scientific prestige, gave her first place in the world's trade in drugs and dyestuffs and assured her early in the war the advantage

in high explosives. The responsibility for so great a blunder does not rest upon our profession, though we must admit that no feature of the centrally organized and far-reaching system of pan-German propaganda has been more successful than the exploitation of the university men of other countries in the interests of her campaign for military and commercial supremacy. No one will be disposed to speak lightly of the value to medicine of the scientific output of German laboratories, though we may properly plead for a more discriminating judgement in separating the wheat from the chaff, and especially for a less complacent acceptance of the literature of German commercial houses as the gospel of science.

Neither should we recognize a dual system of medical ethics under which state-controlled professors in German clinics may advertise in text-books and trade literature patented or trade-marked preparations, in a manner contrary to our code, nor should we allow ourselves to second their efforts by prescribing those products as if there was some peculiar virtue attached to all things medical emanating from the fatherland. Now, when the spell of the superman is broken, when even our academic Olympians, beguiled by flattery or tempted by self-interest, are perhaps aware of the true inwardness of German intrigues, and when those who control our universities are awakened from their dreams of an era of scientific advancement under the direction of exchange professors approved by the Prussian Ministry of Education, will be an opportune time to consider more sympathetically the rights, interests and scientific possibilities of our own people.

More especially should we oppose the sale of common drugs, marketed in fancy packages under fancy names and at fancy prices. Some of these abuses can be controlled by legislation; some by a stricter adherence to our ethical code, or if necessary, by revising it so as to be fairer to our own manufacturers; much can be done by an educative campaign, not only for the benefit of the medical profession but the public, to make known the kind of competition we have to face and the best means of meeting it; and perhaps most important of all, by our medical schools giving to students a more thorough grounding in practical therapeutics, such that they may not be left after graduation to be instructed in the use of drugs by the literature and agents of manufacturing chemists. The medical and pharmaceutical professions should be more closely in touch with the manufacturers and exercise more control over their products, by encouraging their legitimate activities and enlisting their assistance in supplying real professional needs.

I am fully convinced that a more sympathetic coöperation should replace the present aloofness of our professional and scientific men from manufacturing and commercial interests, and that this could accomplish much for the benefit of all concerned. The medical profession should learn, however, to place its dependence on the carefully appraised preparations in our national pharmacopœias, which should contain all really useful remedies, rather than in the commercially-biassed catalogues of drug houses, with their too frequent irrational polypharmacy. Other countries should not forget that in Germany everything is subordinated to military efficiency, and that in supporting even her legitimate activities, they are contributing to her aggressive designs.

In the task before us we should cultivate a self-respecting national spirit, avoiding equally the attitude of the superior cosmopolitan,

"The sturdy patriot of the world alone
The friend of every country but his own."

and the reverence for antiquated inefficiency and smug self-confidence, which at times parade as patriotism. Neither should we be so blind to our own interests as to neglect to profit by the lesson Germany has given us of the necessity for laborious study and investigation, of strenuous and concerted effort, scientific organization and coördination of national aims, and the value of their direction by experts in the different spheres of activity.

Turning to matters of local interest, the most important are those being considered by the Commission on Medical Education, appointed last autumn by the Provincial Government. It is expected that the report and recommendations of the Commission will be made the basis for legislation which will settle many important questions that have been pending for some years.

Foremost among the questions being considered are all matters relating to education for the practice of medicine in the province. Recent years have witnessed a rapid evolution—the passing of the old proprietary schools, the lengthening of the course of medical study, the addition of many full time professors to the teaching staffs of our schools, the extension of laboratory facilities for the teaching of the fundamental sciences, the beginning development of libraries and the erection of commodious hospital buildings. As in other parts of the English-speaking world, the course of events with us has been influenced by the reports on medical education of the Carnegie Foundation and the Royal Commission of the British

Government. The contention, on pedagogic grounds, that medical education should be considered an educational rather than a medical question, thus separating teaching more widely from practice, the movement for the appointment of full time professors in the clinical departments and the far-reaching schemes of Germany to create centres of propaganda in our universities, have all been lively topics of interest. In the midst of this evolutionary unrest the outbreak of the war has added to the confusion, and the most sanguine would scarcely claim that a satisfactory conclusion has yet been reached. Thus far we appear to have adopted a compromise between the British and continental systems, incorporating the worst features of both and the advantages of neither. The clinical branches in our hospitals still suffer from the lack of laboratories, properly equipped and manned for the study of the problems of the wards. Those having the interests of clinical progress at heart, however, will confidently expect the fulfilment of the Government's promise that the enquiry will be an exhaustive one, that all interested will have an opportunity of expressing their views, and that the Commissioner's report based thereon, will remove many defects in our present system of organization.

The position taken by the representatives of the Ontario Medical Association and other medical organizations, regarding the legislative recognition sought by osteopaths, chiropractors and other cults, upholding the principle of a uniform standard of education and examination for all who wish to practise medicine in the province, is well known, and calls for no special reference on this occasion.

Never in the course of history has there been such a demonstration of the national importance of a thoroughly trained medical profession as during the present war. The service which scientific medicine has rendered in protecting our soldiers against typhoid fever, dysentery, cholera and other scourges of armies, has saved tens of thousands of lives and trebled military efficiency.

Ask our wounded soldiers who have been made oblivious to suffering during operations under ether or chloroform, or whose pains have been eased by morphia, what they would think of "drugless treatment" at the front? Should our colleagues then, who under danger and privation are rendering such services, at great personal sacrifice, have their interests at home unnecessarily jeopardized by the granting of special privileges to the uneducated or poorly trained output of foreign proprietary institutions, that are unable or unwilling to meet the requirements for prelim-

inary education and professional training, exacted of the graduates of our own and other recognized universities? Let us remember, however, that it is not sufficient that we ourselves are assured that we seek only what is just, and in the public interest; we must be prepared to defend our cause, keeping in mind the words of Sir Thomas Browne "that a man may be in as just possession of truth as of a city, and yet be forced to surrender" if unprepared to back up his principles by intelligent action.

It would be well at this critical juncture in our professional history to recall the chaotic condition of medical affairs which existed in the province prior to the organization of the College of Physicians and Surgeons in 1866. At that time the public clamour for protection against the prevalent quackery forced the government to take action, and the universities and different medical bodies to unite in establishing a representative institution of the profession to control the curriculum, examinations and practice of medicine in the province. The lapse of time, and the criticism frequently directed against the management of our affairs by the College of Physicians and Surgeons, has caused some to forget too readily "the pit whence we were digged" and the large amount of valuable constructive work which we owe to that body. The medical profession of the province should be slow to admit its own incapacity for self-government. For this reason I believe the movement to make the medical degrees of our universities qualify the holders for the right to practise, is to return to a system which has proved a failure in the past and from which the universities, the profession and the public at large all sought deliverance. We should, therefore, endeavour to maintain the *entente cordiale* and to coöperate for the general good, rather than by magnifying differences, cause a cleavage between the universities and the profession and thus leave ourselves more vulnerable to attack by the enemies of medical progress.

The adjustment of difficulties arising out of the present duplication of examinations should be possible without such radical changes as would endanger the rights and privileges of self-government now enjoyed by the medical profession.

In some of our universities, the non-clinical departments, those having in charge the fundamental scientific and theoretical rather than the practical aspects of the training of students, it is well known, exercise a preponderating influence, and clinicians and practitioners alike should view with misgiving any tendency to place the control of the profession more fully in the hands of those,

who neither by training, experience nor circumstances, are closely in touch with the requirements for efficient practice.

Another live topic for discussion at present is the administration of the Workmen's Compensation Bill. This law has now been over a year in operation, and has occasioned much dissatisfaction and resulted in many protests from medical practitioners, who have been either inadequately remunerated or unpaid for their services. The injustice of the Bill has not yet been fully experienced, because many manufacturers still pay the medical attendant for his services to employees, as they did before the inauguration of the present law.

It is satisfactory, however, to state that both the Compensation Board and the Government, aware from experience elsewhere that the hearty coöperation of the medical profession is essential for the success of the scheme, have shown a willingness to consider fairly the grievances complained of and to adjust matters on a more equitable basis. The failure to pay properly for medical attendance has naturally resulted in a large surplus in the first year's operation of the scheme, which makes it imperative for us to press for fair consideration at this time. It would be regrettable if any avoidable friction arising from a sense of injustice should impair the usefulness of a progressive and necessary measure.

The question of medical fees, a subject of perennial interest to both the public and the profession, is one of the matters being considered by the Commission on Medical Education, and I may, therefore, be pardoned for referring to it. Whatever truth there may be in the complaint against excessive fees charged in individual instances, it can be stated without fear of contradiction that the remuneration of the great body of practitioners has not begun to keep pace with the expense of acquiring a proper medical education and the increased cost of living in the province. A comparison with tariffs published in Toronto in 1839 and 1886 will prove that in many cases fees are actually lower now than at those periods. Nor have ordinary medical fees increased in proportion to the cost of maintenance in the public or private wards of hospitals. One cannot but sympathize with the burden imposed on people with moderate incomes, in procuring proper medical and surgical attendance, hospital accommodation and nursing under present conditions, but the fault lies with the other developments of modern practice more than with the doctor.

It is well known that no body of citizens has laboured so unremittingly for the promotion of preventive medicine and the public

health, regardless of their own financial detriment. The medical profession also has borne without complaint, the burden of attendance on the indigent sick, and too frequently as well, on impostors, who pass as such, in order to escape their financial obligations. We may justly claim that mercenary motives have always discredited a man in the eyes of his professional colleagues, and that he who would make the acquirement of gain the chief object of his calling would be well advised to seek another field for his labours.

In no class of illness is the financial hardship so apparent as in the management of nervous and borderland psychopathic cases, in which the usual prolonged duration, the necessity for constant attendance of nurses and the procuring of suitable accommodation, often tax the resources of the family to the utmost degree. I believe that general experience warrants the statement that one of the most urgent needs in the province at the present time is the provision by the government of suitable accommodation, at a moderate price, for the proper control and treatment of borderland nervous cases, incipient or temporary insanity, inebriates and drug habitues.

The complaint is heard occasionally among our more prosperous citizens that, like the butcher and baker, the doctor should charge the same fees to rich and poor, but if they would recall the fact that the poor to a considerable extent receive free treatment, the impossibility of adopting such a rule would be obvious.

I hope I may now be pardoned for referring to something more in the nature of a family affair, viz., the disproportion between the remuneration of the surgeon and specialist as compared with the physician and general practitioner. This is freely admitted by all, and the opinion was embodied in a report adopted by the Ontario Medical Association a few years ago. This disparity is undoubtedly one of the causes underlying the pernicious custom of fee-splitting, by which less scrupulous members of the profession arrange a secret adjustment of the difficulty; a practice we believe never very common in this province, and of which happily even less is heard in recent years.

There seems no good reason why the present inequality should continue. The basis for remuneration of physician or practitioner and surgeon in a case should be the relative value of services rendered. The present custom, in cases requiring surgical operation for their relief, tends unduly to exalt the mechanical or technical phase of the operative procedure, and to minimize the importance of the preliminary investigation, the diagnosis and the after treatment. This is certainly not in the interests of either medical or

surgical progress. The properly trained practitioner or physician to whom the patient first applies for relief, should be the one most competent by training as well as circumstances, to direct the latter aspects of the procedure, recalling the surgeon for consultation, if in his judgement the interests of the patient require it.

Under such a plan it could be arranged to have the fee charged in a given case cover the whole procedure of preliminary investigation, diagnosis, operation and after treatment, and the remuneration of practitioner and surgeon determined by a previously considered and established value attached to each part of such a procedure. Under all circumstances the interests of the patient should be considered of first importance; there should be no secrecy, and the relative remuneration of each attendant should be determined by the services actually rendered and in accordance with a generally accepted rule. I suggest this merely as a possible equitable and ethical basis of adjustment in keeping with the interests of the patient, and fair alike to medical and surgical attendants.

In reviewing the present condition of medical affairs one cannot overlook the nursing problem, which is one of increasing difficulty, especially in private practice. Training schools for nurses connected with hospitals throughout the province, have accomplished admirable results in raising the standard of training and supplying highly qualified professional nurses.

One must regret, however, a tendency, especially among recent graduates, to limit their professional work to hospital or other selected practice, where the work is easier, rather than to answer the call of duty wherever it may be. This is not in keeping either with professional ideals or a correct sense of duty, and if continued, will assuredly tend to lessen the usefulness of the nursing profession and lower it in the public esteem. It is a custom which should be discouraged alike by hospitals, training schools and the profession at large. I would suggest a lower scale of fees for those who will undertake only selected work, as a practical means of remedying the difficulty.

Important progress in the domain of public health may be reported during the past year. Through the generosity of Col. A. E. Gooderham, the Department of Hygiene of the University of Toronto has been enabled to undertake the manufacture of various antitoxic sera and vaccines, and by the enlightened and public-spirited action of the Provincial Government, arrangements have been made for the gratuitous supply of these products through the profession. In this way will be placed more readily at the

disposal of medical men, the means provided by modern scientific investigation of dealing with different infective diseases.

It is also worthy of note that a local manufacturing company is now furnishing a product—diarsenol—which experience has shown to be a satisfactory substitute for diarseno-benzol. The commendable attitude of scientific and clinical men of the university staff in promoting this enterprise, stands in pleasing contrast to a lack of encouragement heretofore frequently complained of, and we trust marks the beginning of a new era in the evolution of a policy of general application, rather than being merely one of the vagaries of the fairy godmother.

It is a matter of satisfaction to the profession that arrangements have been completed during the past year providing for reciprocity in medical registration between Great Britain and this province.

In order that we may be able to bring the corporate influence of the profession to bear in maintaining the status of medical practice, in directing aright the many problems now in course of adjustment, and in guaranteeing to the people the increasing benefits of modern practice, it is essential that we be well organized. I am glad to report that much progress has been made in this direction during the past year, and that we now have a fairly complete provisional organization throughout the province. Thirty-five local city, town or county societies are at present in existence, and ready to affiliate with the Ontario Medical Association. A provisional constitution has been drawn up to be submitted for the consideration and approval of the Association. There is still in some quarters a remarkable apathy to matters of crucial importance, but signs are not wanting of an awakening, which it is the duty of this Association to hasten.

We are pleased to have with us on this occasion the Executive Council of the Canadian Medical Association, and trust that our combined meeting may help to remove misunderstandings, and to strengthen the bonds between the two Associations.

May I also express to our distinguished American visitors the great pleasure their presence affords us, and how much we appreciate the readiness they have shown to contribute to our programme, especially at a time when we are handicapped by the absence of so many of our own members. We take it as a further evidence of the feeling of kinship, common interest and sympathy existing between our countries, and which is so happily marked this year by the celebration of a century of peace.

It may be of interest to you gentlemen from the neighbouring republic to know that there is now in this city a regiment of eleven hundred of your countrymen preparing to enter the fight to uphold those principles of freedom and justice, dear alike to your country and our own.

We in Canada share a common belief that, after the war, the great centre of scientific medical interest and activity will be on this side the Atlantic—American in the widest application of the term—and those who have watched the wonderful progress which medical science has made in the United States in recent years, will have no misgivings as to your qualifications for leadership.

To our fellow countrymen who have come back after winning distinction in medicine under another flag, we extend a hearty welcome. You will not find the Canada you left a few years ago, the Canada of to-day, but a country chastened by recent experiences, conscious of great responsibilities, purged of many faults, yet quickened in every fibre of her national life, proud of her sacrifices for the Empire and humanity, and confident of her future.

It is a part of our national creed that what the nineteenth century was to the great neighbouring republic, the twentieth century will be to Canada.

The foundations of medicine in Canada were laid a century ago by the army surgeons who saw service in the war against Napoleon, and we may look for a similar influence in our further evolution, to be exerted by those of our number now in service in the greater struggle against the Kaiser. The spirit of freedom and love of liberty which has called them to duty overseas will return with them accentuated by their experiences, to withstand injustice and tyranny from whatever quarter it may appear, to oppose weak submission to wrong and to assist in promoting a worthy national sentiment.

In conclusion, may I express to my fellow officers of the Ontario Medical Association my deep sense of obligation and gratitude for the loyal support and coöperation accorded me in arranging for this meeting, under difficult and at times discouraging circumstances.

NOTES FROM THE MCGILL GENERAL HOSPITAL IN FRANCE

BY J. M. ELDER, LT.-COL.

Officer in Command Surgery

FOREWORD.—The reader must expect nothing historical and little that is statistical in this article. Certain facts which the writer thought might be of interest to the readers of the JOURNAL will be summarized, and certain generalizations, based upon the work done in the hospital, will be given for what they are worth. I use the latter phrase advisedly, because it is a commonplace that no two observers will draw identical conclusions from the same facts.

SINCE the hospital began work in France last June, over six thousand cases have passed through the wards, and about one thousand operations have been done. The results have been very satisfactory: the total mortality has been under 3 per cent.; the post-operative mortality under 5 per cent. But here I would caution the reader against accepting any figures without a full knowledge of other facts which have a very essential bearing upon the truth or falsity of these figures. For example, how long are the patients kept in hospital? It is quite clear that if the patients are passed on (evacuated, to use the technical phrase) to the base, almost as soon as they are received, the statistics of the hospital thus acting in a "clearing" capacity will be much better than those of the ultimate base hospital, and, in times of stress at the front, evacuations are thus forced during several successive days. But in the ordinary course of work a general hospital on the lines of communication is allowed to keep its cases for three weeks, provided that, at the end of that time, if not sooner, the patient is ready to go to a convalescent camp for two or three weeks more, when he should be ready for duty again. As a result of this method the heads of medicine and surgery must, in the case of every patient, answer the question, "Can this man be made fit for duty in six weeks?" If the answer be in the affirmative he should be kept on

and treated; if in the negative he should be evacuated to England as soon as he can safely make the journey in a hospital ship. Here, again, the opinion of the medical men in one hospital may differ from that in a neighbouring unit, and so may vitiate a comparison of their statistics. But on the whole, comparing our results with those of the neighbouring British and Canadian hospitals, which were doing the same kind of work as ourselves, I think we may claim to have done honour to the university which sent us forth to represent her in this war.

In the treatment of surgical cases (with which I am naturally more conversant), our policy has been conservative. We have done wonderfully few amputations, when one considers the serious nature of the wounds and the virulent character of the infection often present in them. It is frequently a difficult matter to strike a just balance between the saving of a limb and the saving of a life in these cases, and this difficulty is not lessened by the fact that here we were often dealing with infections rarely met with in civil life. But, as time goes on, we are satisfied that our policy has been justified. A similar conservative line of treatment has been pursued in head, thoracic, and abdominal injuries, though of the latter we have seen comparatively few, as they are generally operated on nearer the front (and properly so). One cardinal fact the civil surgeon, who is suddenly called upon to do military surgery, must bear in mind, and that is that he is here dealing with selected men, who were perfectly healthy up to the time of their injury. These men will bear severe traumatism and withstand infection a very long way better than the average man in civil life would do, and therefore one can afford to give them more conservative treatment than would be justifiable in civil hospitals.

We have had very few night operations. I mention this because I know that in many of the neighbouring hospitals the operating room staff were kept busy during the whole of the night following the receipt of a bad convoy of wounded. Many of the wounded were taken direct to the operating room and there operated upon as soon as possible. I can only recall two instances in which a patient was conveyed as soon as admitted to the operating room, and in both cases it was for hæmorrhage which had recurred on the hospital train. Our plan was to make these very tired, wounded men as comfortable and warm as possible, and allow them to get several hours of much-needed sleep. It made a wonderful difference in their appearance and one could then judge their condition better. I am quite convinced that it is a great mistake to

add the shock of an operation to the exhaustion of a tedious railway or ambulance journey and that these immediate night operations upon weary patients are often disastrous. In severe cases of bad secondary hæmorrhage we had recourse to blood transfusion, by the indirect method, with very gratifying results.

A word about anæsthetics will doubtless prove of interest. The members of our surgical staff had been "brought up" on ether as the standard general anæsthetic, yet I think I am safe in saying that in 90 per cent. of our cases we have used chloroform. Why this change? There were several reasons for it. The use of the Vernon-Harcourt inhaler renders chloroform very safe. If the apparatus be adjusted so that the patient cannot inhale more than 2 per cent. of the chloroform vapour, it is pretty nearly "fool proof." Again, one often has to operate without any previous preparation of the patient, and vomiting is less likely to follow the administration of chloroform than of ether. This absence of unpleasant after-effects is, too, a matter of no small importance to the busy sisters and orderlies in the surgical wards to which the case is taken from the operating room. Chloroform anæsthesia is not only less unpleasant than is ether anæsthesia, but narcosis is also more rapidly induced and thus much time is saved to the operating staff. We have had no accidents or frights from its use; indeed our only death during anæsthesia was one in which nitrous-oxide-oxygen was being used. The post-mortem examination showed acute dilatation of the right ventricle of the heart. But the latter anæsthetic used in the wards with the portable apparatus was a great boon to us and to the patients in cases of painful dressings, and we have used it freely. Regional, local and spinal anæsthesia we have also used as occasions offered.

The x-ray department has been a great success and, as there are no skiagrams possible in front of us, practically all patients who had been wounded were skiagraphed. It was not safe, we found, to accept the statement on the patient's tag, "operated upon and shrapnel removed," because often other pieces had not been removed. This meant a little delay, but, as I have previously pointed out, the patient was generally the better for that. The MacKenzie Davidson method of localizing the foreign body is very accurate and has been used in practically all such cases—and such pranks as foreign bodies do play in the human body! In one of our recent cases a bullet, which had entered the right buttock, was located by x-ray in the left popliteal space, without a trace of any pelvic symptom. In times of very rapid evacua-

tions, where there was no time to operate upon foreign bodies which could safely be left for a day, our radiographers very cleverly took the skiagrams direct upon bromide paper and these prints went home with the patient as part of his record, so that he might be operated upon as soon as he reached the base hospital in England. The same remark applies to fractures. Another great aid in definitely locating a foreign body, when operating, has been the telephone probe. This has proved especially serviceable in cases of removal of a bullet, or a piece of shell, from the brain, lung or liver, enabling us to extract the foreign body with a minimum of traumatism where trauma counts for so much. The instrument we now use has no battery, simply a small electro-magnet (like a telephone receiver) in the head piece, the necessary amount of electrical current being generated by the fluids of the patient's body.

In perforating gunshot wounds of the lung, associated with hæmothorax, our results have been surprisingly good. How many of these cases survive to come to us I have no means of estimating, but of those who did come we have lost very few. These cases, although admitted to the surgical wards, are always placed absolutely in the hands of the physicians, and the surgeon only interferes when requested to do so. Absolute rest and opiates to slow the respirations are the basic lines of treatment here. I have seen several cases showing all the clinical signs of traumatic asphyxia, due to intrathoracic pressure, quite recover with rest and repeated hypodermics of morphia. Any surgical interference at this time, I feel sure, would have proved fatal. When the hæmothorax has reached a certain stage (either come to a stand-still or causing increasing pressure symptoms) the pleural cavity is aspirated. We have always done this by the method of replacement. Our pathologist and the surgical majors very ingeniously arranged a mercury manometer tube attached to a "case sheet" board, and this instrument served our purpose admirably. Under local anæsthesia a small-sized aspirating needle is inserted into the pleural cavity at the upper level of the fluid and the manometer reading carefully taken. A larger needle is then inserted *at a lower level* and attached to an aspirating bottle. Between the smaller needle and the patient's body is a two-way stop-cock, one way goes to the manometer and the other is attached to an oxygen cylinder with a reducing valve, so that as the blood flows out into the aspirating bottle oxygen is forced into the emptying pleural cavity at such a rate that the intrathoracic pressure (as shown by

the manometer reading) is kept constant. In this way further hæmorrhage is avoided and we had no symptoms of syncope follow this operation. The procedure is always carried out in the wards in order to disturb the patient as little as possible. I am quite convinced that the early removal of blood from the pleural cavity minimizes the danger of subsequent adhesions due to organizing fibrin.

Empyæmas treated by thoracotomy and free drainage, aided by posture, have also done well. In most cases we were able to resect the ribs under novocaine or anocain local anæsthesia.

Thanks to our excellent equipment and the ingenuity and skill of our pathological staff, we have been able to treat successfully many infections with autogenous vaccines and we have at all times been quickly told the exact nature of the infecting organisms present in any case. This gave both physicians and surgeons an inestimable advantage in planning lines of treatment. I know of no civil hospital in whose pathological laboratory better work is being done than in ours here in France.

Speaking of serums and vaccines, in a general way one may say that their use as prophylactics has been amply demonstrated in this war. We have had a few cases of para-typhoid (alpha and beta), but practically no typhoid; of tetanus we have only had one case per two thousand patients. If one compares these figures with those of the Boer War, one must, I think, attribute this immunity to the prophylactic use of serums and vaccines. A tour through the trenches and advanced dressing stations early last summer convinced me that very few of the wounded escaped the prophylactic dose of antitetanic serum. Yet, of the three cases of tetanus which we had, two had been given serum at the front and one had not. In fact the serum is often given by the regimental medical officer, in the trenches and in the hurry, and often in an uncertain light, I think it is quite possible that an occasional patient may get none or only part of the dose—one knows how often the hypodermic syringe leaks. In one case we found the serum had been injected directly into the lung tissue. Beyond a patch of traumatic pneumonia and a few days hæmoptysis the patient was none the worse. When one sees the conditions under which the medical officer in the trenches and in the advanced dressing stations has to work, and the uniformly good work done there, one always salutes "the man at the front". How many days' immunity does a dose of antitetanic serum confer? This is a question which has given us all food for serious thought and we have now adopted the

practical rule that, in suspect cases, we shall give a second immunizing dose upon the ninth day after the first dose was given. This is always given intravenously, beginning with a very dilute solution, which is allowed to flow in slowly, the patient being watched carefully meanwhile for symptoms of anaphylaxis. We had one fatal case of anaphylaxis with antistreptococcic serum and there have been cases with antitetanic serum in neighbouring hospitals.

During this past winter we had a plague of "trench foot", and whole convoys of this disease would come down to us from the wet and cold of the trenches. While seldom fatal, it is a disease which incapacitates the soldier for several months, and therefore, all but the very mildest cases are promptly evacuated. What may be the exact nature of the morbid process present in this disease has, I think, not yet been settled, and as a result of this uncertainty one finds little unanimity of opinion as to the best treatment for it. Clinically it appears to be allied to chilblain, though many cases resemble very closely Reynaud's disease. Infection is nearly always present and moist or spreading gangrene is the rule. To get a case running the course of the frost-bite we, in Canada, are so familiar with, is rare. Foul smelling suppuration is generally associated with the gangrene, along with pyrexia and a marked toxæmia in the worst cases. One can only hope that the untiring efforts of Sir A. Wright, who is working on the spot, may lead to the isolation of a specific infection in this disease and secure the prophylactic vaccine or serum which will render this great plague of the "Tommy" a thing of the past. In the meantime, strict cleanliness, warmth, and exposure of the feet to the air appear, upon the whole, to give us the best results. Surgical measures are only indicated when a definite line of demarcation forms, or when the gangrene shows a tendency to spread rapidly up the leg, as sometimes happens in the badly infected cases.

ACUTE MAMMARY CARCINOMA

(Volkman's Mastitis Carcinomatosa)

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SOME forty years ago Volkmann¹ applied the term "mastitis carcinomatosa" to a type of cancer of the breast, possibly more a clinical than a pathological entity, occurring particularly in young women during pregnancy or lactation; simulating to a marked degree an acute or subacute mastitis and characterized by an excessively rapid growth; terminating fatally in a few weeks, in some cases, in the great majority within a year. Volkmann's original communication was embodied in a statistical report on operations for breast carcinoma and was as brief as it was concise, occupying only a few lines. Though he made scant reference to the pathology of the disease, this phase has been to a large extent elucidated by later observers. Interchangeable with the name mastitis carcinomatosa later writers, including Rodman² and Leitch³, have used the terms acute cancer of the breast or acute mammary carcinoma. The latter of these is the more correct usage.

The same criticism which MacCarty⁴ has directed against "the extravagance of synonyms" as applied to "pathological mammary conditions" is well merited here where no less than twelve or more terms have been used to designate this particular form of cancer of the breast and which I have found scattered through the literature. Among these are lactation cancer, acute encephaloid cancer, mastitis carcinomatosa (Volkmann), acute medullary carcinoma, acute mammary carcinomatosis, carcinoma mastitoides (Schumann), acute scirrhous carcinoma, lymphocytoma of the breast (Lardennois and Moure), inflamed cancer, acute brawny cancer, acute mammary carcinoma, acute cancer of the breast. Verily a distressful commentary on the "chaotic condition" of the present-day terminology of diseases of the breast.

Read in part at the annual meeting of the Alberta Medical Association, Banff, Alberta, August 20th, 1915.

Received for publication March 29th, 1916.

Among those who have contributed additional data to our knowledge of and recorded cases of this rapidly fatal form of breast cancer have been Bryant⁵ (1857), Billroth⁶ (1871), Volkmann⁷ (1875), Paget,⁸ Gross,⁹ Klotz,¹⁰ Schmidt,¹¹ Delbet,¹² Sheild,¹³ Baker,¹⁴ Rodman,¹⁵ Bloodgood,¹⁶ Schumann,¹⁷ Gibbon,¹⁸ Leitch,¹⁹ Lardennois and Moure²⁰ and a few others.

In 1911 in a paper entitled "A Study of Carcinoma Mastitoides" E. A. Schumann, of Philadelphia, collected twelve cases of the Volkmann type including one of his own. These were all he found reported by various observers from the time of Bryant in 1857. In a further study I have been able to collect an additional thirty-three cases including the one herein reported, making in all forty-five so far recorded in the literature. Among the individual observers, J. C. Bloodgood,¹⁶ basing his report on 1048 lesions of the breast at the Johns Hopkins Hospital, of which 597 were carcinomatous, observed eight patients with this type of breast cancer.

In his recent report some eight years later (1916) on 1577 cases of breast tumours, no statistics are given concerning the acute form. Another investigator, Archibald Leitch,³ pathologist of the Caird Cancer Research Laboratory, Dundee, states that "during five years clinical and laboratory investigation of cancer in London, in which time I must have examined some hundreds of cancers and other affections of the breast, I encountered the condition on two occasions only, and in both cases the disease was considered to be of an inflammatory nature by the surgeons who operated. Speedy recrudescence and dissemination showed the true nature of the disease. In Glasgow I have seen four cases and in Dundee one in the same number of years. Its rarity in hospital practice may not, however, be a correct indication of the frequency of its occurrence in general practice."

Rodman,²¹ who has had an exceptionally large experience with malignant growths of the breast, had seen seven cases to the end of July, 1914. Of the 609 cases of breast cancer operated on between the years 1902 and 1912 at the Mayo Clinic, Judd and Sistrunk²² state that in only three patients did cancer occur in the lactating breast. Two of the patients died within a year after operation, the remaining case was an intracystic papilloma. Whether the former two were of the Volkmann type is not indicated but it serves to show the marked malignancy of carcinoma during the period of lactation.

Of the forty-four cases of the acute type which have been

found recorded in the literature only one was living and without recurrence at the end of five years. This was a case of J. C. Bloodgood's.²³

To the solitary record of so-called "five year cure" I would add one other now (March 21st, 1916) in good health, over seven years after operation. This case is herewith reported. Mrs. A. G., aged thirty, five para, housewife, Canadian, consulted me February 13th, 1909, for a soreness and swelling of the left breast. She states that five weeks previously she first noticed a small "lump" in the upper and outer portion of the breast. This was soon followed (in probably ten to fourteen days) by what she calls a "caking" with "hardness over the breast" which soon became red and swollen. There was a slight "bloody" discharge from the left nipple. Pain has been marked, seems to run from the breast to the left axilla—especially affects her when the left arm is raised. Believes she has lost in weight. Has had diarrhoea alternating with constipation during the past month.

Family History—negative; Personal History,—always enjoyed good health. States that following her last confinement had an inflammation of the affected breast. Has had five children; two of these died in infancy. Present condition—woman, aged thirty, brunette, above the average in size and in height, mucous membranes pale, has pyorrhoea alveolaris, skin moist, muscular development good.

Examination of the left breast—comparing both breasts this is the larger. A considerable portion of the outer hemisphere, probably the circumference of an orange, has a pitted appearance; the skin is hot, hard (indurated), and oedematous over this area. Fluctuation is also made out towards the centre of this same area. The breast has the appearance of an acute suppurative mastitis. There is an enlargement of the axillary glands of the same side (anterior set).

Genito-urinary system, last menstruation December 12th, 1908. Patient is therefore in her third month of pregnancy. There is nothing else of note in her history. On subsequent examination by me a few days later, a rather wide area of infiltration was made out. Retraction of the nipple was noted. A diagnosis of carcinoma was made. I advised operation at once. This was performed a few days later by Dr. E. G. Mason, of Calgary, to whom I am indebted for notes of the operation. "This consisted in a wide removal of breast, both pectoral muscles, the axillary contents, the contents of the subclavicular space as well as the fat

beneath the scapula. The axilla was cleaned out first and the glands and fat were removed with the breast and pectorals *en bloc*. Care was taken to preserve the long thoracic nerve and the respiratory nerve of Bell." There was found to be an extensive carcinomatous infiltration in the greater portion of the outer hemisphere of the breast down to the pectoral fascia. Numerous small abscesses were found in the breast tissue, one of which was much larger than the rest. Cultures taken from the contained purulent-like fluid were sterile. The patient made an excellent recovery, and has been confined three times since the operation. As a matter of interest it may be mentioned that following the operation a consultation with five well-known physicians and surgeons was held to see whether it would be advisable to terminate pregnancy. A majority advised against this procedure and she went on to full term.

PATHOLOGICAL REPORTS.

The report of Dr. D. G. Revell, provincial pathologist, on a portion of the gland where the suppurative process was most marked, was as follows: "The specimen on examination proves to be carcinomatous—medullary carcinoma. There is much round-cell infiltration of the tissue which is no doubt due to inflammatory processes."

Another portion of the breast was submitted to Professor Nicholls of McGill University who reported as follows: "The material received consisted of two masses of breast tissue, and some axillary fat containing enlarged lymph nodes. The lymph node was in large measure substituted by fat cells, there being only a relatively thin outer layer of lymphoid tissue. It showed no malignant infiltration. The breast tissue showed a matrix of dense fibrous tissue composed of bundles running in various directions and devoid of normal ducts. This resembled fibromatous overgrowth. In many parts there were numerous gland tubules and acini suggesting adenoma. In other portions the tubules were dilated into small cysts, some of them showing papillomatous overgrowths into their cavities. In still other portions there were round or oval islets composed of dense aggregations of glandular cells apparently excessive growth of the cells of certain acini. In other portions again there were diffuse masses of epithelial elements in bands, streaks and larger masses. In my opinion, the tumour was originally a fibro-adenoma cysticum which has

subsequently taken on malignant characters. I should call it an adeno-carcinoma."

A very small remnant of breast tissue, all that remained, was submitted to Dr. J. C. Bloodgood, of Johns Hopkins Medical School. The report stated that the specimen showed the presence of "an acute lactation mastitis. No malignancy noted."

Although Volkmann remarks that the disease is found usually in young women during pregnancy or lactation, with our present knowledge exception must be taken of this since probably one half of the reported cases have occurred in women of middle age and who had not borne children for years or had never been pregnant. Over one half of Rodman's cases were of this class.

Furthermore a distinction must be drawn between those carcinomata activated by pregnancy or lactation which though of rapid growth do not evidence the acute inflammatory reaction so characteristic of the Volkmann type of the disease. It should be widely known that pregnancy is to cancer of the breast as "a strong wind is to a prairie fire" at all times. Altogether too little attention has been devoted in our current text-books or journals to this phase of carcinoma. In only twenty-four of the forty-four cases were the ages given; the average of this number being 39.3 years for the time of onset of the disease. Probably the total number would bring this figure below the average age of breast carcinomata in general. According to Adami and Nicholls²⁴ forty-eight is the average age. The oldest patient in the series was fifty-three years, the youngest twenty-four years. The dictum that the younger the patient the more rapid the growth, holds good here especially when pregnancy complicates the disease. Cases might be cited where the disease has run such a rapid course that from the time of onset to the fatal termination a few weeks only elapsed. Such was the course with Billroth's patient who "was attacked five weeks before delivery of her eighth child and who died seven days after an easy and natural labour." In S. W. Gross' case occurring in a pregnant woman "within two weeks from the time a small nodule was noticed—the disease had diffused itself throughout the substance of the gland."

SYMPTOMATOLOGY.

It is a matter of regret that so many cases were treated for chronic mastitis, for weeks and months in some cases before a competent surgeon was consulted. Hence many observations on the early development and course of the disease are lacking.

Among the earliest indications, the finding of a small tumour has been mentioned by Gross, Schumann, Davis, Lardennois and Moure (three small tumours), Rodman, and this was one of the earliest signs in my case. The outstanding feature of the objective signs is the close resemblance which the disease bears to an acute or subacute mastitis. Redness, varying in shade from a light blush to a deep red, at first localized, quickly becomes diffused over the breast; along with this we have heightened temperature of the skin. Soon the surface of the breast becomes hard, brawny, oedematous and infiltrated with the cancerous process—assuming a typical *peau d'orange* or orange skin appearance with pittings in the skin at various intervals. Careful palpation of the mammary gland at a comparatively early date will reveal carcinomatous infiltration to a considerable depth and of wide area. This was made out on careful examination in the case I have reported.

Retraction of the nipple was recorded in only six of the cases. Undoubtedly this is a much smaller number than would be expected. I cannot help but believe several times this number showed this symptom. In twelve of the twenty-five cases (where information is given) the axillary glands were enlarged and in seven the supraclavicular glands as well. Discharge from the nipple was noted in only two cases, including my own patient. In a few cases the inflammatory process reaches a stage where fluctuation with abscess formation is present.

Bockenheimer²⁵ in his "Atlas of Clinical Surgery" has depicted in life-like colours an example of the Volkmann type which shows the right breast over a considerable portion of the upper and lower inner quadrants, acutely inflamed and the skin a deep red colour. Reddened punctate areas are seen between the breasts and below the clavicle and above larger rounded spots, evidencing a true carcinomatous lymphangitis. The skin in these localities is very dark red and in places blue; brawny infiltration is present as Bockenheimer states "which is due to the plugging of the lymphatics with cancer cells and consecutive oedema."

One of the remarkable features is the rapidity with which the disease is diffused throughout the gland producing a generalized swelling which may reach large proportions as reported by several writers, more especially by Lardennois and Moure where both breasts were affected and greatly enlarged. The measurements given in their case were in the right breast, vertical plane 33 cm. 34 cm., in the horizontal plane with a circumference of 68 cm., The left breast measured 37 cm., in the vertical and 39 cm., in the horizontal plane with a circumference of 69 cm.

The patient's health suffers comparatively early in the disease with loss in weight and strength and consequent symptoms of cachexia; symptoms of toxæmia develop and from this time on the course is rapidly downward. Rise in temperature is present in many of the cases. In Lardennois and Moure's case there was hyperpyrexia shortly before exitus. Death occurs from toxæmia and exhaustion in practically all cases.

Schumann states that metastases may occur early though apart from involvement of the axillary and supraclavicular glands and of the opposite breast, little mention is made of this point in the literature. Hertzler²⁶ in his work, "Treatise on Tumors," states that "early metastasis particularly in the lungs is the rule." In one of Rodman's cases there were metastases in the lungs, liver and opposite breast. In Lardennois and Moure's patient there were probable metastases in both ovaries.

PATHOLOGY.

There is a comparative dearth of data anywhere in the literature referable to the pathology of this interesting variety of breast cancer. Probably the disease has usually been regarded more in the light of a clinical and not as a pathological entity; as apart from the marked inflammatory reaction the actual type has usually been that of a medullary, a scirrhous or simplex carcinoma or even a mixed growth.

Schumann has given a full description of the findings in his case; likewise Lardennois and Moure in theirs; while Leitch has approached the subject more in detail than the others, giving the finer histological findings as well as his concept and views of the disease. He deals especially with the pathology of *peau d'orange* or orange skin and of the diffuse carcinomatous infiltration so characteristic of the disease. Apart from the work of these observers the histological side of the disease has been sadly neglected by nearly every writer on the subject.

The condition of the skin, much reddened and cedematous and pitted at variable distances with all the earmarks of an acute inflammatory process, is due to the intensity of the carcinomatous invasion with dense infiltration of the skin and underlying tissues. Leitch, in explaining the cause of this *peau d'orange*, compares this condition with "the brawny arm of breast cancer" both similar conditions. As he remarks, "the lymph stasis of brawny arm is due not to the compression of the axillary veins but to the blockage of the lymphatics by the permeating growth." Leitch notes

especially the presence of round cells in large numbers, lymphocytic in character, wherever there is carcinomatous infiltration of the skin. They are found in large numbers where the papillary layers are absent. The cause of the thickened skin evidently lies deep in the corium where practically every lymphatic channel appears to be filled with cancer cells. He is of opinion that the "round cell" infiltration is not due to a reaction from the cancer cells but that it is a direct result of the complete blockage of the lymph channels. The pittings or depressions in the skin which gives the "orange skin" appearance, he concludes, "are due to the exaggerated pits of the hair follicles." Other observers have emphasized the presence of round cell infiltration and on this point I will dwell more particularly when I have briefly reviewed Schumann's and Lardennois' pathological data.

In Leitch's specimens, the medullary type of carcinoma was the predominating one and as one would expect, "the proliferation is found everywhere through the gland, the epithelium of the whole organ seems to be malignant." In Schumann's patient the type of growth was a mixed one, though the characteristics were chiefly those of carcinoma simplex. The important feature "was the secondary inflammatory reaction evidently set up by its presence." Wherever there is any considerable group of cancer cells it is surrounded by dense "round cell" infiltration. These cells were chiefly of the lymphoid type and were everywhere apparent. Many small abscesses were scattered throughout the tumour. Schumann remarks that it is universally noted in the reported cases that this invasion of the round cell infiltrate appears to have been produced by some action of the cancer cells. He mentions the fact that while the round cells were lymphoid in type in his own case, yet in a microscopic section from one of Rodman's cases, they were polymorphonuclear leucocytes which in large numbers surround and invade the growth "which is a medullary carcinoma".

Under the title of "Lymphocytome du sein. Mastite, carcinomateuse aiguë de Volkmann," M.M. Lardennois and P. Moure²⁰ have recounted a remarkable case of the acute form of breast cancer in a woman of thirty-six years, treated for five months for chronic mastitis and abscess before entering the Tenon Hospital. Both breasts were greatly enlarged. There was extensive infiltration of the skin and of the breast down to the pectoralis major muscle. The axillary and supraclavicular glands were involved. She died six and a half months after the disease was first noticed. The breast tissue showed large nests of "round cell" infiltration surrounded by a scanty connective tissue stroma. The round

cells were lymphocytes and mononuclear round cells. Karyokinetic figures were seen among these latter cells. The glandular portions of the breast were hyperplastic and hypertrophic as during lactation. Cultures from the breast fluid and from the abscesses were negative.

These authors believe that theirs was a case of lymphocytoma of the breast on account of the predominance of the lymphoid elements. Furthermore it is their opinion that the disease which Volkmann has described should not be classed as an epithelial tumour "since sarcoma of the nature of a lymphocytoma might reproduce the clinical characters."

Undoubtedly in all the cases I have cited, including my own, the clinical phenomena have been the same, making due allowance for the stage of the growth.

Concerning Leitch's contention that the round cell infiltration is not due to a reaction from the malignancy of the growth, I can scarcely agree, for it is certainly strange that in certain cases, as in Rodman's, there was a large infiltration of polymorphonuclears, surely strong evidence of inflammatory reaction.

Schumann does not hesitate to say that the cause of the "round cell" infiltrations is the malignancy of the growth and the excessive reaction which it engenders. Ordinarily lymphocytes are not found where there is a very acute inflammation but where "the inflammation is low grade as in tuberculosis they are commonly met with, though not in large numbers."²⁷ If carcinoma is infective, a fact which has never yet been proven, then probably the presence of these cells would be more easily explained. However the evidence is presumptive that the reaction inducing the intense round cell infiltration is inflammatory in character.

Ehrlich²⁸ has demonstrated that there are variations in the degree of malignancy in the cancer cell. "By passage through mice, mouse cancer can be rendered more and more malignant until it will surely take in close upon 100 per cent. of the animals instead of 5 per cent. to 35 per cent." and the rate of growth increases immeasurably. As Hertzler observes "it is the type of cell and not the number that indicates the rate of growth." Hence it is reasonable to suppose that in these acute carcinomata of the Volkmann type, we have to deal with a highly virulent type of cancer cell whose rapidity of growth has been intensified and which is capable of engendering a marked inflammatory reaction.

Lardennois and Moure's claim that the disease in their patient was not carcinomatous, seems to be difficult to dispute, but the

clinical signs were identical in most respects with other cases of the acute type. The glandular involvement was marked whilst the presence of lymphocytes in large numbers was the same as in Leitch's, Schumann's and other cases, pointing more to a carcinomatous than a sarcomatous process. From a close study of the literature and of my own case, my belief is that Volkmann's title is not a misnomer as Lardennois and Moure would have us consider it.

DIAGNOSIS.

The disease will always be a source of regret to the physician or surgeon unless he bears in mind the possibility of a fulminating type of breast cancer, simulating an acute inflammation of the breast. Should a small tumour have been noticed previously by the patient then the diagnosis will be made more easily. During the early stages of the disease, it is practically impossible to distinguish a pyogenic infection from a carcinoma of the Volkmann type. More especially is this true during lactation when mastitis is not infrequent. During pregnancy mastitis is so rare that any inflammation should cause one to consider carefully the possibility of acute carcinoma, especially where there is any induration of the skin or underlying tissues. Bloodgood is of the opinion that any induration of the breast during pregnancy should be explored as usually, with rare exceptions, it will be found to be tuberculosis or carcinoma. In such cases microscopical examination of the sections of breast tissue should at once clear up the diagnosis.

Generally speaking if an acute mastitis does not tend to clear up within ten days from the commencement of the disease, effort should be made to distinguish between this and the acute form of carcinoma. Both may begin with a localized area of redness and induration. In the former case, the nipple will usually be found to be the source of the infection. A rapid diffusion of the disease through the gland is noted in the latter case. The skin assumes a light or dark red colour over its surface. Early axillary gland involvement may be seen in both cases and is not of great diagnostic importance in differentiating these conditions. Retraction of the nipple should be carefully looked for, though not present in all cases, is of great importance. The peculiar stony hardness, an induration due to infiltration of the tissues usually both superficial and deep, is of the greatest importance in distinguishing these conditions and should be carefully sought.

In my own case, I believe that it was the principal reason for making the diagnosis. One point I meant to refer to was the

temperature both of the patient and of the local breast condition. In acute mastitis the temperature is usually higher (taken in the mouth or rectum) than where acute carcinoma is present. The local temperature of the inflamed breast is usually raised in both cases. When there is absolute doubt the one thing to do is to make a small incision and remove a small portion of breast for pathological examination, cauterizing the areas from which the specimen has been removed.

It is my belief that every preparation should be made for the radical operation, should the pathologist's report prove the disease carcinomatous.

PROGNOSIS.

So long as medical men will not realize that temporizing with malignancy is fatal this type of breast cancer will ever remain what Schumann regards "as one of the most rapidly fatal of all malignant growths." That cure may result from operation is seen in Bloodgood's case and in my own. These end results strengthen the idea that the disease if recognized early is not so utterly hopeless as even Rodman²¹ considers it. At the meeting of the American College of Surgeons in London, England, in July, 1914, he stated that this disease is so rapidly fatal, in a few weeks to three months, that in his opinion it "should not be operated on at all unless for palliative purposes or for psychical effects." Five out of seven of Rodman's cases had been treated for mastitis and even operated on by other surgeons for abscess before the malignancy of the affection was discovered. All of his cases died within a short time after he first saw them. All of them had been referred to him for operation, so that he had no chance to prolong life materially with operation.

All of Bloodgood's eight cases had been treated for weeks and months for mastitis. Two of them had been treated for eight months with massage. Lardennois and Moure's case had been treated for five months for mastitis and abscess.

Jacobson, Rowlands and Turner²⁹ in the recent edition of their work, "The Operations of Surgery," hold out a most gloomy outlook in these acute cases. May I hope that much of the pessimism vouchsafed by so many surgeons is due to lack of early recognition. These patients usually reach the operator too late for even palliative treatment.

The complete operation of Halsted or the most radical opera-

tion possible should be performed with thorough removal of the axillary glands and also the supraclavicular if deemed necessary.

To be of any value, operation must follow at once early diagnosis, otherwise nothing is of any avail. There will probably be some cases in which even though there has been early recognition it will be as Rodman concludes—without benefit. In summing up the salient facts of the case I have reported, certain points call for comment. Evidently the original tumour was a cystic fibro adenoma and, as Professor Nicholls stated to me, had been there for a considerable time, although the patient had never noticed any tumour in this breast until five weeks before she consulted me. The effect of pregnancy with the much increased vascular supply and other conditions of which we know little, brought about a rapid change in the malignancy of the growth. It is a matter of common knowledge that the female breast is the "meeting place," so to speak, of a great variety of tumours. Hence it is not surprising that there should be found mixed types of growth culminating in a rapidly growing medullary carcinoma. Concerning the presence of an adenocarcinoma beginning in a cystic fibro adenoma, Bloodgood¹⁶ asserts that this growth has "a tendency to infiltrate and to produce a scirrhus or a medullary carcinoma". The medullary type is usually of most rapid growth. In a patient, with this type of carcinoma, upon whom I performed a radical operation, the axillary glands were largely involved less than two months after the tumour was first noticed. It is a noteworthy fact that in the case I have reported, the axillary glands showed no involvement and I believe that this along with the thorough operative procedures accounts in great measure for the results obtained. Early recognition before there is an affected axillary gland is the great essential. Dr. Bloodgood's report on a portion of the tissue beyond the pale of malignancy demonstrated the acute inflammatory reaction present in the breast tissue. Whether in the "round cell" infiltration spoken of by Dr. Revell in his report the cells were polymorphonuclears or lymphocytes was not stated but probably the former, since he noted the marked inflammatory reaction. Whether the previous mastitis had any effect on the development of the malignant growth is difficult to say, though it is well known that mastitis is frequently a precursor of carcinomatous change in the breast.

In conclusion, I would add that cancer in whatever form it

may assume should never be dallied with, least of all with this excessively rapid type upon which I have endeavoured to throw a little light.

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Author	Case No.	Patient's age	Married or Single	Pregnancy or lactation	Symptoms of inflammation, pain, pea, orange, etc.	Retraction of nipple	Discharge from nipple	Axillary glands enlarged	Suprascavicular glands enlarged	Previous mastitis	Previous injury to breast	Duration of treatment before operation or diagnosis	Operation	Pathological diagnosis	Duration of life after operation	Total duration of life from time of onset to death
Billroth ⁶	1	36	M	near full term	yes	....	..	..	..	..	..	...	none	c. simplex	..	less than 6 weeks
Bryant ⁵	2	43	S	....	yes	yes	..	yes	yes	..	..	...	none	...	..	less than 3 mos.
"	3	53	M	....	yes	....	..	yes	yes	..	..	...	none	...	..	6 mos.
"	4	49	M	....	yes	....	..	yes	..	..	..	...	none	...	..	9 mos.
Klotz ¹⁰	5	..	..	....	yes	....	..	..	..	..	..	...	..	...	..	3 mos.
Morant Baker ¹⁴	6	34	M	lactation 4 mos.	yes	....	..	yes	..	..	..	treated 6 mos. for mastitis	..	...	..	death.
Delbet ¹²	7	..	..	pregnancy	yes	....	..	..	..	..	..	...	..	...	..	death.
"	8	..	..	non-pregnant	yes	....	..	..	..	..	..	...	..	...	..	death.
"	9	..	..	non-pregnant	yes	....	..	..	..	..	..	...	..	...	..	death.
"	10	..	..	pregnancy	yes	....	..	..	..	..	..	...	..	...	..	death.
Schmidt ¹¹	11	..	..	non-pregnant non-lactating	yes	....	..	..	..	..	..	...	..	...	..	6 mos. from onset.

Shield ¹³	12	56	..	....	yes	yes	..	..	mastitis and abscess ...	..	Injury 6 mos before onset ....	..	c. medullary diffuse	..	death. ..
"	13	50	..	....	yes	yes	..	..	...	..	..	..	carcinoma	..	death. ..
E. A. Schumann ¹⁷	14	33	M	lactation 5 mos.	yes	yes	..	yes	...	..	treated for mastitis, massage, etc	..	c. simplex	..	death in 8 mos.
J. C. Bloodgood ¹⁶	15	..	..	....	yes	yes	..	..	...	..	all treated for months for mastitis	..	medullary	..	all died
"	16	..	..	....	yes	yes	..	..	...	..	..	..	medullary	..	but one
"	17	..	..	....	yes	yes	..	..	...	..	..	..	scirrhous	..	case and
"	18	..	..	....	yes	yes	..	..	...	..	..	..	scirrhous	..	this
"	19	..	..	....	yes	yes	..	..	...	..	..	..	cystic adeno carcinoma	..	reached
"	20	..	..	....	yes	yes	..	..	...	..	..	..	cystic adeno carcinoma	..	5 years.
"	21	..	..	....	yes	yes	..	..	...	..	..	..	not given	..	no reurr- ence.
"	22	..	..	....	yes	yes	..	..	...	..	..	..	not given	..	..

Author	Case No.	Patient's age	Married or single	Pregnancy or lactation	Symptoms of inflammation, pain, peau d'orange, etc.	Retraction of nipple	Discharge from nipple	Axillary glands enlarged	Suprascavicular glands enlarged	Previous mastitis	Tumour noted	Previous injury to breast	Duration of treatment before operation or diagnosis	Operation	Pathological diagnosis	Duration of life after operation	Total duration of life from time of onset to death
M. B. Miller ³⁰	23	38	M	...	yes	...	..	yes	yes	...	..	..	treated for mastitis	inoperable	medullary	..	death.
B. C. Hirst ³¹	24	..	M	lactation 2 weeks	yes	...	..	yes	yes	...	..	..	treated for mastitis and abscess	inoperable	...	..	death.
E. P. Davis ³²	25	43	M	pregnancy	yes	...	..	..	..	...	..	..	...	inoperable	encephaloid carcinoma	..	death.
W. L. Rodman ²	26	45	M	not for 20 yrs.	yes	....	..	yes	..	...	..	..	several wks. for mastitis	yes	...	3 mos 6½ mos.	..
"	27	45	M	....	yes	....	..	..	..	...	..	..	for mastitis	yes	...	..	death.
"	28	35	..	pregnant	yes	....	..	..	..	...	yes	..	...	yes	...	..	6 mos.
"	29	45	..	no	yes	....	..	..	..	...	yes	..	...	yes	...	..	3 mos.
"	30	..	..	....	yes	....	..	..	..	...	..	..	...	..	...	..	death.
"	31	..	..	....	yes	....	..	..	..	...	..	..	...	..	...	..	death.
"	32	..	..	....	yes	....	..	..	..	...	..	..	...	..	...	..	death.
W. S. Cheesman ³³	33	30	M	pregnancy	yes	yes	yes	yes lymphangitis	6 mos.
"	34	36	M	yes	death.

[illegible]

SUPPURATIVE OTITIS MEDIA

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THERE is, perhaps, no common disease which may be less uniform in its clinical features and more uncertain in its course and end results than suppurative inflammation of the middle ear. While the ordinary case of earache usually runs its course, with or without discharge, to a happy conclusion with complete recovery, this is not always the case. Severe or prolonged inflammation may leave unfortunate and permanent damage to the hearing, and it is of the utmost importance to try to secure a rapid healing so that the best possible hearing result may be obtained. The disastrous results of neglect on the part of parents are sad to contemplate, but these can only be combatted by the more general spread of education in these matters. Of more practical interest is the study of the insidious types of disease where serious and often fatal complications may develop without any striking premonitory symptoms. In the present paper I have tried to point out some of the clinical features which call for special study, and, in a general way, to discuss the indications for surgical interference in various conditions.

Before discussing the local anatomical features of the middle ear spaces, let me remind you that the middle ear developmentally and anatomically is an adjunct of the naso-pharynx. Its development represents the formation of a cul-de-sac from the naso-pharynx between the labyrinth and the drum membrane. The external meatus is developed quite independently as a blind canal, dipping down from the surface as far as the drum membrane, and this independence is maintained in the matter of the diseases of the two tracts. Inflammation of the middle ear arises ordinarily from the naso-pharynx by extension into this cul-de-sac, the neck of which is formed by the Eustachian tube.

The local anatomy of the middle ear is of the highest importance. In this region we have spaces of varying size, lined by mucous membrane, thrust into the depths of the temporal bone. Great

Read before the Montreal Medico-Chirurgical Society, December 3rd, 1915.
Received for publication April 3rd, 1916.

variations in the size and arrangement of these spaces occur at different ages and in different individuals. *In the infant* the middle ear spaces are relatively simple. The tympanum is proportionately large and the Eustachian tube short and relatively wide; the mastoid antrum is a large single cell, quite superficial, separated from the periosteum only by a very thin layer of soft bone and there are no accessory air cells; the mastoid process or tip does not develop until the second year of life. The superficial position of the antrum explains the early and rapid formation of subperiosteal retroaural abscess in the suppurative otitis of infants often without perforation of the drum.

This simple type of middle ear persists in a certain percentage of adults and is known as the infantile type. The antrum of course becomes less superficial with the growth of the temporal bone and the mastoid process in these cases consists of diploetic bone. The degree and extent of the development of accessory air cells in the temporal bone varies widely, from the infantile or diploetic type, to the pneumatic type, in which the mastoid process is completely riddled with very numerous and large air cells which extend, in some cases, into the region of the zygoma and towards the occiput. Between these two extremes all possible intermediate forms may be met with, and this feature is very beautifully shown by an *x-ray* plate of the mastoid.

A point of clinical interest well shown by the *x-ray* is the changed appearance of the mastoid where there has been a former attack of otitis. This is seen as a consolidation of the bony tissue and a disappearance of some of the air cells due to the throwing out of new bone during the inflammatory reaction, and this altered appearance may be of great diagnostic importance.

The Eustachian tube is of the highest importance forming the connecting link between the naso-pharynx and the middle ear. It is the great pathway of infection and frequently the determining factor in the course of the disease. It is not widely known that we may have accessory cells present in connexion with the tympanic end of the tube and yet these may be of the utmost importance in chronic suppurations associated with tube disease.

When an acute inflammation invades the middle ear it involves the whole region from the Eustachian tube, through tympanum and antrum, to the farthest limits of the pneumatic cells of the mastoid. The mastoid cells are thus involved at the outset in every acute middle ear infection, but as the overwhelming proportion undergo early and complete resolution, the symptoms of mas-

toid inflammation are often absent or masked by the acute symptoms of the otitis. This involvement of the mastoid cells by extension of the inflammation along the continuous lining membrane from the middle ear is the true explanation of cases formerly classified as primary mastoiditis. In some cases the symptoms of the original invasion of the middle ear may be so slight as to attract little or no attention, perhaps only a slight fulness or transient deafness without any earache; but more commonly an otitis of moderate severity subsides and apparently heals, only to develop mastoid trouble later on. Infection in these cases remains latent for a considerable time and acute symptoms when they appear point only to the mastoid, or sometimes, unfortunately, to an intracranial complication. This type is characteristic of infection with the streptococcus mucosus capsulatus, but may occur with other forms of infection; in a recent case of my own of this type the streptococcus pyogenes was found in pure culture. Cases with severe mastoid pain at the onset point to a pneumatic mastoid and must be watched carefully for later development of trouble in this region.

Cases of acute otitis media are known as suppurative when they go on to perforation of the drum with a discharge from the ear. As a matter of fact, from a pathological standpoint, this is a very poor standard of classification. In many cases where the process is quite mild, serum is poured out rapidly and soon bursts through the drum membrane. The amount of discharge may be small and healing almost immediate without any true suppuration in the ordinary sense of the word. On the other hand, the process may go on more or less slowly and insidiously and attack the bony structures with more or less serious results, without any perforation of the drum, and, therefore, no discharge from the ear.

There are two varieties of acute otitis without perforation which might be spoken of as the *presuppurative types*; these are, (1) serous catarrh and (2) otitis simplex. The former is generally associated with adenoids in children but may be seen with an acute cold in the head in the adult. There is a swelling of the lining of the Eustachian tube leading to obstruction. The air in the middle air spaces becomes absorbed and serum is poured out. The patient complains of deafness and the drum is found discoloured and retracted. While this has been regarded by some as a mechanical process or transudate, it is probably a mild inflammatory process with exudate. It usually subsides with absorption of the serum, but it is important to recognize that this differs from the more

severe forms in degree only, and may easily go on to suppuration.

The name otitis simplex is applied to a class of cases seen in infants, due to a pneumococcus infection. There is swelling of the mucous membrane but no exudate, the drum is reddened, but not bulging. This usually heals spontaneously but may go on to suppuration. It is surprising how frequently the pneumococcus exists normally in the naso-pharynx in children, just as it occurs in the lungs of adults, and any depressing influence, such as an acute illness or malnutrition, may give it an opportunity to invade the ears.

ACUTE SUPPURATIVE OTITIS MEDIA is a severe type of disease and may be set up by any of the common forms of infection. It sets in with fever, headache and acute pain in the ear. It may be conveniently divided into three stages:

(a) Period of onset with increasing pain, lasting till perforation. Perforation should relieve pain in an uncomplicated case.

(b) Period of discharge which may be subdivided according to the character of discharge, which is (a) first serous, then (b) purulent, and lastly (c) mucoid.

(c) Period of resolution begins with the arrest of discharge and closure of the perforation; during this stage hearing gradually returns to normal.

There are two important matters to consider in the treatment of these serious cases: (a) What is the general management of the case? (b) What are the indications for active surgical interference?

In the stage of onset, the general treatment should be strict confinement to bed and a good purgative, and careful warning against blowing the nose or the use of nasal washes. The danger lies not so much in the use of the wash, which may be distinctly indicated, but in the extreme likelihood that the patient after using it will unduly blow his nose in the effort to clear it. The nose is best treated by a mild antiseptic ointment or oil spray and the patient should be instructed not to blow but to clear away any secretion by sniffing. The *pain of onset* frequently calls for a paracentesis but facilities for this are not always at hand and where one decides to wait, phenacetine or some similar drug may be given, or even a small dose of morphine, and an ice bag applied to the mastoid. *Anæsthetic drops* are apt to alter the appearance of the drum and make the estimation of the progress of the disease more difficult.

As to the indications for paracentesis. Here is a questi

which immediately confronts the practitioner. Should it be done early, or is it better to wait? There is something to be said on either side and such an important matter merits some discussion. The advantage of this measure *in suitable cases* is that it cuts short the period of pain, and, by relieving the pressure of accumulated exudate, is of decided advantage to the inflamed structures of the middle ear. On the other hand, while apparently a minor surgical measure, it should never be undertaken unnecessarily. In the early stage it is often impossible to know whether a certain case will go on to suppuration or heal by resolution. If the latter occurs the disease is much shortened and the amount of careful nursing required infinitely less. Of course if paracentesis be carried out with proper aseptic precautions the risk of introduction of secondary infection by the operation is minimal, but we must remember that there is a definite risk of secondary infection in other ways. After perforation any act of coughing, sneezing, or blowing the nose, materially increases the danger of further sepsis from the tube and there is always the slight additional risk of a secondary infection from the canal.

The indications for paracentesis in the order of their relative importance are, (1) high temperature, (2) pain in the ear, and (3) a bulging drum. With these three present in combination the indication becomes clear, but where only one or two are present the matter resolves itself to a question of the individual judgement of the surgeon. High temperature at onset is frequently due to the associated condition and it is often a difficult problem to decide if influenza, tonsillitis, or even acute coryza, have been its cause rather than the otitis. A recent case will illustrate such a condition.

On February 24th, 1915, I was asked to see an infant of eight months with a temperature of 106° ; the physician in charge had noted an inflamed drum membrane on the left side and after careful examination had found no evidence of any other cause for this fever. On examination both drum membranes were found acutely inflamed, the left could be clearly seen acutely inflamed but not bulging; the right was covered with a hæmorrhagic bulla so that it was impossible to say whether it was bulging or not. I therefore, on account of the high temperature, advised and carried paracentesis on the right side, since the presence of the bulla suggested greater severity of reaction on that side. A small amount of serum escaped. On the following day the temperature remained high (105°) and there was now slight bulging on the left membrane.

The child continued seriously ill and up to this time no other cause could be found to explain the fever. Accordingly paracentesis was done on the left side with a similar result, viz., the escape of serum only. On February 26th, temperature was still at the same level, but signs appeared of a left apical pneumonia which had, undoubtedly, been the cause of the high fever.

That such a complexity of events should occur is familiar to all who know the difficulties of the diagnosis of chest conditions in infants. The case ran a favourable course, the ears healing rapidly without any purulent discharge. On general lines it is better to do a paracentesis in such a case where doubt exists, if proper facilities are at hand and the symptoms appear urgent.

It is important to remember that in infants high temperature is often the only early symptom of an acute otitis. This is sometimes overlooked, especially where there are other signs to which the fever is ascribed. Many an obscure and worrying case has been cleared up by the appearance of a discharge from the ear. One is often asked if it is a serious thing to allow a drum to perforate itself instead of doing a paracentesis. There is no evidence that this is so and, provided perforation occurs early, cases with spontaneous rupture may run a mild course and heal rapidly.

The most striking results of paracentesis are seen in infants where on account of the simple type of middle ear the whole cavity is more or less efficiently drained by the operation. In adults the effect of paracentesis is less striking and the course of the disease is more dependent on the relative severity of the infection.

During the second stage, that is where discharge has already occurred, the treatment resolves itself into cleansing measures and keeping the meatus healthy; for this purpose careful drying after syringing and the instillation of alcohol are very important. Paracentesis is not often required after spontaneous perforation, but is indicated if there is evidence of defective drainage and retention such as a persistently bulging drum with some degree of fever and pain in the ear.

Persistence of fever after perforation is a very important matter. If there is no other cause for this fever apart from the ear, it indicates a very severe infection and such a case is especially liable to develop mastoid suppuration, even if there is a temporary quiescence.

The treatment of the third stage, that is after the drum has healed and the signs of inflammation have subsided, consists in inflation of the ear either by politzerisation or the use of the Eusta-

chian catheter. Inflation should be kept up as long as any improvement follows its use,—in a routine case, about a week or ten days is usually sufficient.

The amount of deafness which is left after a simple otitis depends on the amount of connective tissue thrown out in repair, and the degree to which this interferes with the movements of the ossicles, hence the need of getting rapid healing and complete resolution. The crucial point is the region of the oval window and a trifling strand of connective tissue here may so limit the movement of the stapes as to produce an extreme and permanent deafness. The duration of discharge in an ordinary case should not exceed three to six weeks, and the persistence of discharge after this period should lead to a very careful investigation as to the cause of the delayed healing.

CAUSES OF PROLONGED DISCHARGE and *delayed healing* are constitutional and local. In the present discussion we are interested chiefly in the *local causes* of trouble, though it is quite evident that the patient's general resistance is an ever-present influence of the greatest importance. The severe course of otitis in scarlet fever is due mainly to the severe *constitutional depression*, and a similar lack of resistance and repair may be seen in delicate children or those suffering from pulmonary tuberculosis.

The local causes of prolonged discharge arise from two sources: first, the Eustachian tube, and second, the middle ear and mastoid. This classification will be applied again later in the discussion of chronic suppurative otitis media, into which group these cases drift if not successfully arrested at this stage. The Eustachian tube is probably responsible when the discharge is small in amount and chiefly mucous in character, and the indications call for attention to the naso-pharynx, nose and throat. The classical case of this type occurs in children suffering from adenoids and enlarged tonsils, and attention to these gives prompt and satisfactory results. Where, on the other hand, the discharge is profuse and purulent at this late stage, trouble in the mastoid should be suspected, even in the absence of other symptoms. Certain local signs are often present, such as pulsation of the discharge and sagging of the upper posterior wall of the meatus, but as these are objective the patient and often the physician is conscious only of the profuse discharge.

As already stated early in the paper the mastoid cells partake in the general inflammation of the middle ear, but if the course is favourable, the exudate is absorbed and the mastoid may show no permanent change. When, however, there is delayed resolution,

two things may occur: either more or less reactionary change, shown by new bone formation, or the process may become destructive in character with profuse suppuration. There are two anatomical features which predispose to this latter unfavourable course of the disease: (1) very large pneumatic cells allow of much free pus and the lining membrane cannot always deal with it successfully; (2) the presence or development of extensive folds of mucous membrane in the middle ear tends to cause retention of discharge in the deeper parts with unfavourable results.

These cases of deep seated trouble not associated with local symptoms of mastoid involvement are classified as LATENT MASTOIDITIS. At any time the means of escape of the pus from the deeper parts of the mastoid may become entirely cut off by acute swelling in the region of the aditus, in which case matters become gravely urgent. After trying conservative treatment with such a case for a reasonable time, say from four to six weeks from the time of onset, one must consider seriously the advisability of opening and draining the mastoid. During this period of conservative treatment one should watch carefully for any signs of increased pressure in the middle ear or mastoid, in which case no delay should occur in undertaking the operation.

Symptoms of local pressure from retention of exudate likely to arise are, persistent pain and throbbing, especially at night, vertigo, headache, vomiting, increasing deafness, or signs of pressure on the facial nerve. In two recent cases of my own this last symptom of facial paresis occurred where otherwise the patient seemed to be doing well and the otitis resolving. Mastoid drainage was followed by rapid disappearance of the paresis and rapid healing of the ears. It is, perhaps, hardly necessary to add that the appearance of œdema and tenderness over the mastoid process, or in the region of the tip, call for prompt interference and drainage.

These latent cases, even if they go on to healing after a prolonged course of suppuration, are sure to leave the patient's hearing more or less damaged, if nothing more unfortunate happens, and I would impress upon you the fact that under such conditions a *simple mastoid* operation is essentially a *conservative* measure and undertaken for the *safety of the patient* and the *preservation of his hearing*.

A typical case of this type was referred to me in May, 1911. A male, aged sixty years, with a history of an earache with discharge six weeks previously. Pain lasted for about two weeks,

but had been absent since. At present the only complaint was of the profuse discharge; there was no pain, fever, or headache. On examination there was profuse purulent discharge which showed pulsation. There was slight sinking of the inner end of the upper wall of the canal, no tenderness of the mastoid, very slight tenderness in the region of the emissary vein. Diagnosis of a pneumatic mastoid with latent suppuration was made and confirmed by x-ray, which showed an extremely pneumatic mastoid clouded by the presence of exudate. Operation was performed the following day and healing was rapid, hearing result very satisfactory.

A somewhat similar case was seen in January, 1912. Patient, a female aged twelve years, had a history of discharge from the right ear for seven weeks. This had followed severe cold without much pain at onset. The chief feature, up to the last two days, had been the persistent, profuse discharge. She then developed headache, pain behind the right ear, temperature 100°. Examination showed a very profuse muco-purulent discharge. The drum was red, not bulging, there was no sinking of the wall of the canal or redness or swelling of the mastoid, but marked tenderness over this region. X-ray showed a very pneumatic mastoid and there was evidence of cavity formation from bone destruction. At operation a dense outer table was found, which explained the absence of progress of the inflammation towards the surface. There was much breaking down in the mastoid cells and exposure of the lateral sinus, forming a perisinus abscess. Convalescence uneventful, healing was rapid and the hearing result excellent. This illustrates considerable bone destruction taking place in the mastoid without the development of signs on the surface.

A similar, but more unusual case was seen in April, 1912, in a child of two and a half years, where extensive exposure of the sinus had occurred without development of signs in the surface of the mastoid, there were, however, definite signs in the meatus. This is unusual as in childhood the disease usually comes early to the surface owing to the relatively superficial position of the antrum, but in this case the outer table would appear to have been unusually well developed and dense in character.

CHRONIC SUPPURATIVE OTITIS MEDIA: In this group clinically we include all cases where the discharge has persisted beyond a certain length of time, fixed according to taste, say, anything beyond six months. The common feature of these cases consists in a chronic perforation of the drum membrane; that is to say, one that will remain permanently open. The perforation may be small

or of such extent as to involve a total loss of the drum membrane. Usually in such cases there is a history of one of the infectious fevers, especially scarlet fever or measles, but very often no history of onset is obtainable. The amount and character of the discharge vary widely and discharge may be constant and profuse, or scanty and intermittent.

From a clinical standpoint the all important question to be determined is the probability of such an ear becoming a source of danger to life, the feature of discharge is, after all, of secondary importance. While it is perfectly true that any chronic suppurative otitis may be a source of danger, the actual number of cases developing trouble is relatively small. The prognosis is based on the cause of the chronicity and the character of repair. On general lines a distinction has to be made between cases where, although the drum is destroyed, the mucous membrane lining the middle ear remains intact and the discharge present comes from the Eustachian tube. The classical case of this type is seen in childhood associated with adenoids and enlarged tonsils and usually responds immediately to removal of these growths. The middle ear in these cases may show more or less secondary inflammation from the irritation of discharge on its way through; it is not, however, the source of the discharge to any extent. Such cases are not, as a rule, dangerous, though often very persistent and troublesome to both the patient and doctor. The indications here are for careful cleansing measures for the ear, attention to the nose and throat and special efforts to improve the nutrition and general resistance of the patient. These cases are not suitable for a radical mastoid operation.

The more dangerous cases are those where severe inflammation has destroyed the lining of the middle ear and the mucous membrane has been replaced by the invasive growth of epidermis from the external meatus, and where more or less active *bone disease* in the middle ear, attic or antrum, is the source of discharge. It is in this type of case that we find cholesteatomatous masses which are formed by the accumulation of desquamated epidermal debris from the invading matrix. These cases have foul smelling discharge and are often associated with recurring attacks of pain in the ear or headache, and the development of aural polypi or granulation tissue in the middle ear. Such cases are a distinct menace not only to the hearing but to the life of the patient, and call for prompt attention and, failing rapid healing under conservative treatment, should be advised to have a radical mastoid operation.

Between these two groups, all various gradations and combinations may be met with and the question of the degree of danger is not always to be settled easily offhand and we must depend on the personal judgement and experience of the individual. In borderland cases one must take into account what are known as the social indications: that is to say, the patient's opportunities for treatment and the importance to him of the amount of time lost in treatment. A patient living in easy access of special advice may well decide to adopt conservative measures until definite need of more radical treatment appears. On the other hand, where he lives remote from any large centre, and can spare only a limited time for treatment, he may wish to undergo a radical operation as a guarantee against the development of some dangerous complication at some future time when he could have no skilled advice.

I would impress upon you the view that a radical operation should be undertaken with the object of ensuring the future safety of the patient rather than as a guarantee of arrested discharge. If this is kept in mind there need be no disappointment for the patient or criticism for the operator in cases where a small amount of discharge persists after a radical operation. These cases, though fortunately small in number, do occur and this is especially true in cases associated with chronic tube disease. They will be reduced to a minimum if care is taken to discriminate as to the cause of chronicity in selecting cases for operation.

The effect on the hearing after radical operation depends largely on the local conditions and the amount of hearing present before operation; but as I have said, this is undertaken for safety and other considerations are of secondary importance.

To summarize briefly, I would urge on you two things:

1. At the onset of an acute suppurative otitis insist on strict confinement to bed until it is established that the infection is a mild one and that the disease is running a favourable course.

2. Put a limit to the time such an ear will be allowed to discharge by a thorough investigation as to the cause of delayed healing and the adoption of active surgical measures in appropriate cases.

Remember that *every added week of discharge* makes it more certain that the *hearing will be permanently damaged* and brings nearer the danger of serious deep-seated trouble. Let your motto be the popular cry of the day, "Safety First."

Editorial

DR. EDSALL ON THE STUDY OF THE RESPIRATION

AT a recent meeting of the Montreal Medico-Chirurgical Society, reported in this issue of the JOURNAL, Dr. David L. Edsall, of the Massachusetts General Hospital, was the guest of honour of the society. His masterly address on this occasion on the Study of the Respiration may be said to mark an epoch in the advancement of our scientific knowledge of this subject, which has recently aroused in England and is now awakening among our colleagues across the border and ourselves so much enthusiasm, and which has now reached a stage when its far-reaching application is beginning to shed a new light upon our conceptions of the processes of health and disease. From some points of view the idea of the blood as an inert vehicle or carrier of all substances, excretive or nutrient, given off or absorbed in the body's waste and repair, is not new. But the knowledge of the important bearing which minute changes in its chemical composition have upon the body processes, and the understanding of the extraordinarily delicate mechanism by which an acid-base equilibrium is maintained within the circulation and by which metabolic changes are initiated or consummated, has dawned upon us only in quite recent times. With it comes the elucidation of many vital problems hitherto obscure.

Nowhere is more valuable work being done upon this fruitful subject than in the city of Boston, where at the Carnegie Institute, Massachusetts General and Peter Bent Brigham Hospitals, and the Deaconesses Hospital, active experimentation along scientific lines and following exact methods is being pursued upon the various sides of the many associated problems. The names of Joslin, Benedict,

Palmer Henderson, Boothby, Peabody, and Means, as well as that of Dr. Edsall himself, are each associated with a definite step in advance.

Dr. Edsall's address presented an interesting review of the present status of our knowledge, with special reference to the work being done at the Massachusetts General Hospital by himself and others under his direction. As it could not be obtained for publication, we quote in full from an abstract kindly supplied by himself:

Dr. Edsall referred to the very limited progress in the clinical study of respiration that had been made for generations until the work of Haldane, especially, opened new opportunities available to clinical methods. This work, and the large amount of work accumulated since then on respiratory metabolism, have emphasized, indeed relatively over-emphasized, the importance of the chemical control of respiration, and there has been a temporary loss of interest in the mechanical and nervous factors. The importance of these latter, however, has been made more significantly evident than before by such observations as those of Wenckebach regarding the influence of splanchnoptosis on the circulation through its effect on diaphragmatic breathing, by Lewis' observations on the differing influence of costal and diaphragmatic breathing on blood pressure, and by Scott's studies of the influence of the pneumogastric. Dr. Edsall referred to his own work on exaggerated breathing, and on the relatively economical effect of slow deep breathing as compared with rapid superficial breathing, and the bearing this has upon the comprehension of circulatory disturbances and especially on the improvement in such cases from the use of respiratory depressants. He dwelt upon the inexactness of much of the pharmacological knowledge of drugs used to influence respiration and reviewed the work done by Means, Higgins and himself, which has shown that not only the general character of respiration and its speed must be studied, but also the effect upon the efficiency of alveolar ventilation, and

possible influence upon general metabolism, the influence upon the respiratory centre and upon the circulation, must all be determined and considered in reaching an exact conclusion as to the actual useful effect, if any, of any drug upon respiration. Studied in this way, morphine and heroin are evidently respiratory depressants in the human subject. Interesting effects, probably of considerable importance in understanding its general action, were found to be exerted by morphine upon general metabolism. Strychnine, of such wide repute as a respiratory stimulant, could not be determined to exert such an effect in the human subject, and atropine, while it increased respiration, also increased metabolism and caused widening of the dead space; and since it did not stimulate the respiratory centre, the ultimate effect upon the result of respiration, i.e., upon the ventilation, seemed to be nil. Its effect upon the dead space, however, helps at least to explain its effect upon spasmodic asthma. Caffein, while it does stimulate metabolism, has more effect upon respiration than this accounts for and gives direct evidence of stimulating the respiratory centre. In therapeutic practice, however, we need to gain much more exact knowledge than we now have of the actual condition of the respiratory apparatus, particularly the centre, in disease, before we can safely use respiratory stimulants and depressants freely. There is no doubt that we have in some instances mistaken overstimulation for depression and vice versa. Instances of this were mentioned, and also examples of quite unexpectedly severe and even dangerous effects of ordinary doses of drugs upon the respiration, in which there was reason to think the result was the summation of the effect of the drug and a not well comprehended similar influence of the poisoning of the disease. In the intense recent study of acidosis there is some tendency to accept it too freely as the cause of respiratory disturbance and to accept changes in the CO_2 tension of the alveolar air as at once indicating changes in the acid-base balance in the body, neglecting toxic substances

other than acid, which like the drugs mentioned, are sometimes known to have important influence upon respiration and may have, more frequently than we know. The contentions, for example, of Lewis and Barcroft and their co-workers regarding acidosis as the explanation of the respiratory disturbance in one whole group of cardio-vascular-renal cases are not supported by work done in the Massachusetts General Hospital, or by that of Peabody.

One exceedingly important form of respiratory distress, that seen in pneumonia, has been and is still the subject of study by Newburgh, Means, and W. T. Porter. They appear to have shown that whereas the respiratory apparatus in experimental pneumonia is greatly depressed in its ability to respond to the stimulus of increased CO_2 in the inspired air, this is not due to encroachment upon the lung space, nor simply to the pneumococcus septicæmia, nor to mere exhaustion of the muscular apparatus of respiration, nor to oxygen want, nor to acidosis, but apparently to abnormal stimuli sent up the pneumogastric nerve from the diseased lung,—a very ably carried out and suggestive study, and one that may lead to fruitful clinical results and that strongly emphasizes the need of considering respiration not only from its relations to the chemistry of the blood stream but from its nervous and also from its mechanical relations.

Within a few years a considerable body of facts has accumulated from the widespread study of the great function of respiration and its disturbances and we have much clearer comprehension of some diseased conditions and can even treat some of them, at least, more rationally and safely. Many of these disturbances have been very discouraging from a therapeutic standpoint. Continued work is likely to make them somewhat more cheerful subjects to the clinician.

THE CONGRESS OF AMERICAN PHYSICIANS AND
SURGEONS

PROBABLY no more brilliant or representative gathering of the Profession has taken place at Washington than that which assembled from May 9th to 11th, last, in the halls of the New Willard and Shoreham hotels, to discuss recent advances in medicine, surgery and the specialties, and to exchange the word of good fellowship. The influence of this triennial gathering upon the medical public of this continent can hardly be overestimated. The accumulated details of scientific advance presented at its fourteen constituent societies reflects, and to a certain extent determines, the direction of progress, while the character of the audience places upon those communications which it has accepted as original, the stamp of discovery.

The opening address of the Congress was given by the President, Dr. W. S. Thayer, of Baltimore, on the evening of Tuesday, May 9th. The other general features common to all societies of the Congress were the Symposium on Syphilis, opened by Drs. John Fordyce and Homer F. Swift, of New York, and Dr. Hugh Cabot, of Boston, whose remarks on Syphilis and Society were a cogent statement of the inadequacy of any system of recording, and the complete failure of the management of syphilis by the private practitioner at the present time, and the importance of establishing systematic and thoroughly competent hospital treatment for all cases early in the disease; and the Symposium on Immunization, in which the underlying problems were set forth by Dr. Theobald Smith, of Princeton, and the application of serums and vaccine therapy were presented by Dr. William Park, of New York, and Dr. Ludvig Hektoen, of Chicago, respectively. A verbatim account of the papers and discussions from these two symposiums will be found in the *Journal of the American Medical Association*, of May 20th, 1916.

Among constituent societies the session of the Associa-

tion of American Physicians was, as usual, particularly active and interesting. Two valuable symposiums, one on exophthalmic goitre, the other on acidosis, occupied a large part of two mornings, and revealed the important place which the study of the respiration is taking in the illumination of the obscure problems of metabolism. The high respiratory quotient, indicating a rapid basal metabolism, in goitres and other conditions associated with hypersecretion, has become a diagnostic feature of importance which, by reason of the simplified technique, is within easy reach of the clinician, while the alterations in the relation of the volatile and non-volatile acids in the blood in many states is being studied by so many observers and methods that the mass of data accumulated yields a basis upon which conclusions may at last be built. A clear elucidation of the present status of the subject of acidosis in the light of recent observations was given by Dr. Lawrence J. Henderson, and several popular fallacies in the interpretation of the phenomena of respiratory exchange were brought out by Dr. Yandell Henderson, who approached the subject from the more directly physiological side. Dr. Frothingham, of Boston, reported a large number of determinations of the CO_2 tension in the alveolar air, percentage of ammonia nitrogen to total nitrogen, presence or absence of acetone in the urine, and alkali-tolerance tests in a series of cases of diabetes, Graves' disease, pneumonia, nephritis, acute rheumatism, chronic cardiac disease, and other conditions, in which the variations in the relation of a lowered CO_2 tension to other evidences of acidosis was interestingly shown. Dr. Howland called attention to the relation of retention of phosphoric acid in the body to certain types of diarrhoea in children, and to the acidosis of nephritis, and pointed out that this is not a productive acidosis, but one in which the lowered CO_2 in the alveolar air, as the increase in non-volatile acids in the blood, takes place at the expense of the volatile acids, the main one of which is CO_2 .

The importance of the Van Slyke determination of the

bicarbonate reserve of the blood was emphasized, for in certain cases one may get a normal finding here with a lowered CO_2 tension in the alveolar air, a discrepancy to be explained by the hypersensibility of the respiratory centre. This method also eliminates the factor of the pulmonary epithelium of which we know little.

Dr. Woodyatt suggested using intravenous injections of dextrose to determine carbohydrate tolerance. If practicable this test would be of great value for it would save many hospital days upon green vegetables, which diabetics now spend in determining their tolerance.

Studies on vital capacity in various stages of cardiac decompensation carried out by Dr. Peabody, of Boston, showed a direct relation between a lowered vital capacity of the individual and a diminution of his working power, which establishes a definitely graded prognostic sign.

The subject of exophthalmic goitre received a valuable contribution from the studies of Louis B. Wilson on the sympathetic ganglia removed from the cervical region of patients with marked evidences of hyperthyroidism, which opens a fruitful and highly suggestive field of enquiry. The ganglia were removed both during life from operative cases and at autopsy from patients who had succumbed to the disease, and were studied by careful differential stains in the light of controls from normal subjects. Definite pathological changes consisting of hyperchromatization, hyperpigmentation, atrophy and other evidences of degeneration, were demonstrated in the nerve cells of the ganglia, coincident with and corresponding to the grade of hyperthyroidism.

A further important contribution to the symposium on the biochemistry of goitres was made by Kendall, who has amplified his studies on the alpha-iodine crystals and demonstrated the absolute necessity of the carboxyl radicle in the elimination of the substances which subsequently form the crystals.

Dr. Christian's experimental investigations into the

effect of theocin on different types of renal lesion (beautifully illustrated by miniature charts) led to the following conclusions: First, that theocin produces marked diuresis in chronic kidney lesions and chronic cardiac cases, followed almost invariably by renal fatigue, and that therefore these drugs should be given intermittently, the kidney being allowed a period of rest in the interval. Second, there may be no increase in the nitrogenous substances put out. It would therefore seem that diuretics are not detoxifiers. Third, that diuretics may be, and most often are, harmful in acute cases, and fourth, that for diuresis theocin was best given in combination with digitalis to get the desired effect. The discussion of the paper brought out the important point that it was harmful, and even dangerous, to persevere with diuretics.

The estimation of blood sugar as a test of carbohydrate tolerance and the Allen starvation treatment of diabetes were the subjects of valuable and highly suggestive communications from Dr. Louis Hamman, of Baltimore, and Drs. C. F. Martin and E. H. Mason, of Montreal. Dr. Hamman demonstrated, on the basis of a large series of experiments, that the renal threshold was fairly constant, '17 per cent. in the blood being the point at which sugar appeared in the urine.

Dr. Martin reported that all diabetics admitted to the Royal Victoria Hospital, Montreal, during the past year had been placed upon the Allen treatment, and the facility with which the urine was made sugar-free and tolerance for a sufficiently nutritious diet established in all cases in which the patient's intake could be regulated with precision had been strikingly demonstrated. It was found that one to two days of preliminary starvation were usually sufficient and that in most cases the level of tolerance was best raised by a slow and gradual attainment accompanied by a weekly starvation day. The effects of the starvation period upon the nitrogenous elements and sugar content of the blood and urine had been studied, and the experimental glucose curve

of the blood had also been estimated by the determination of the blood-sugar on admission of the patient and again after the administration of 100 grams of glucose at hourly intervals until all traces had disappeared from the blood. The curve thus obtained had a sharper and higher ascent and a much longer decline (lasting from eight to twelve hours) in the diabetics than in normal individuals studied under similar conditions, the long decline indicating a delay in excretion and pointing, in the opinion of the observers, to a renal block. The prognostic importance of this condition of renal block, in which a hyperglycæmia persists without any glycosuria and also the point that, in order to determine its presence the blood must be examined at the right time, the hyperglycæmia appearing in these cases two hours after meals, was emphasized. Other observations were the rapid variations in the tolerance of some diabetics on a fat-protein diet as shown by the varying D. N. ratio, the inconstancy of the relations of the acetone bodies and betaoxybutyric acid when these are present in the urine, and the now well-recognized fact that evidences frequently exist in the blood of acidosis without any trace in the urine.

Among the most illuminating contributions to the Congress was that of Professor A. S. Warthin, of Ann Arbor. He discussed the subject of spirochætosis, and this was abundantly illustrated by lantern slides.

Dr. Warthin has thrown a new light on the subject of syphilis, inasmuch as he has added to his already numerous contributions, one which seems to complete his investigations. On previous occasions he has distinctly shown how diffusely disseminated may be the lesions which are due to the spirillum, of Schaudinn, and has drawn attention to their wide-spread character through every organ and tissue.

According to his views, gumma is no longer to be regarded as the one specific evidence of lues, but the lesions are apt to be found in every organ and tissue of the body, no matter at what point the infection has entered the system. Thus, for

example, he has demonstrated how extensive are the fibroses of the pancreas in connexion with lues (and this too quite irrespective of diabetes), and that the aorta may show patches of degeneration in which spirochætes are found, quite apart from the usual recognized morbid anatomical pictures of syphilitic aortitis. The less active tissues also contain abundant evidence of fibroid changes due to the same cause, and so on throughout the whole body. One must speak therefore of spirochætosis if one would properly designate the disease.

Another contribution of great interest concerned the use of vaccines of various types in the treatment of typhoid fever. Gay and Chickering have enlarged upon their investigations in the use of sensitized vaccines, and found it possible in a large proportion of cases to cause a speedy termination of the fever (an abortive type) by the use of the ground sediment of a polyvalent sensitized vaccine. The charts present abundant evidence that success attends the treatment, and there is no doubt that experience will tend to increase our employment of vaccines in typhoid fever the more we are able to understand in what way they should be used. It is true that this is not altogether a specific action, for it would seem that the injection of certain proteoses have at times a similar effect, and Miller has shown that in many cases of poly-arthritis one may get excellent results by this means, quite apart from any bacterial ingredient.

This discovery is, of course, of the very highest importance, and it remains yet to be determined whether in these cases it is an indication of a leucocytic crisis by chemical or other means, which is responsible for the abortion of these fevers. The point is of great interest, particularly as there was a tendency during the Congress, on many sides, to minimize the effects of vaccines, and to acknowledge that we were as yet very far from the truth in according to them any specific value.

Dr. Bass, in a communication on the control of malaria by treating malaria carriers, demonstrated the extreme im-

portance of attending to this source of infection. In places where malaria prevails, but where it is impracticable to install measures to prevent the breeding of mosquitoes, the following method of treating carriers was most efficacious in eradicating the disease. The method consisted in plotting the country under investigation into small sections and carefully examining the entire population of each section for the presence of malaria. The malarial survey thus achieved was extremely complete, owing chiefly to the remarkable co-operation of the whole population of the affected district, and the results were correspondingly successful, all the people infected being treated with quinine. The cost of such a control was definitely proved to be much smaller than that of the well-known methods of mosquito control. Dr. Bass' work deserves great commendation, as a masterly undertaking, which was, in the general opinion of his hearers, carried to a most successful termination.

THE annual meeting of the American Section of the International Association of Medical Museums which took place at Washington on May 8th, last, being the day immediately preceding the Congress of Medicine and Surgery, marks another step forward in the evolution of a body that is assuming yearly a more useful place among the ancillary medical societies. The programme was an excellent one; the attendance good; and the proceedings characterized by a keenness of interest and debate that made it perhaps the most successful session of this Section as yet held. The range of subjects covered included matters of microscopical and museum technique, illustrating methods of medical teaching, and several interesting presentations along various lines of medical research. A short report with the programme will be found on page 565.

IN a recent number of the *Journal of the American Medical Association*, attention is drawn to a preliminary report, published in the February number of the *Journal of*

Pharmacology and Experimental Therapy, of an investigation conducted by Dr. J. D. Pilcher on the action on the uterus of a number of drugs. The substances examined, fifteen in number, were those most commonly used in proprietary "female remedies." One drug, blue cohosh (*Caulophyllum thalictroides*), showed a variable tonic effect. Five, pulsatilla (*Anemone pulsatilla* or *Pulsatilla pratensis*), unicorn root (*Aletris farinosa*), figwort (*Scrophularia marylandica*), valerian (*Valeriana officinalis*) and skullcap (*Scutellaria lateriflora*) were more or less depressant, the last named, however, less so than any of the others. Cramp bark (*Viburnum opulus*), black haw (*Viburnum prunifolium*), swamp maple (*Acer spicatum*), false unicorn *Chamaelirium luteum* or *Helonias dioica*, liferoot (*Senecia aureus*), wild yam (*Dioscorea villosa*), motherwort (*Leonurus cardiaca*), passion flower (*Passiflora incarnata*), and squaw vine (*Mitchella repens*), all gave negative results.

A REPLY to criticisms recently made by Mr. A. Verville, M.P. for Maisonneuve, concerning the rejection of recruits on a second physical examination after passing the first examination, was tabled in the House of Commons by Sir Robert Borden on May 17th. The statement contained a reply from Brigadier-General Wilson, officer commanding Military District No. 4, to the effect that although certain civilian practitioners in outlying districts have been discovered passing men in defiance of definite instructions, there was really no justification for the criticisms made. A memorandum from Colonel Potter, acting Director-General of Medical Services, was attached to the statement. In it Colonel Potter stated that, in his opinion, the number of rejections among the men who came up for reëxamination before being sent to camp was due to laxity in the regular medical inspections. The memorandum stated also that special consideration is being given to the possibility of utilizing recruits who are unfit for service overseas to replace those at present on duty in Canada, so that the latter may go overseas.

Book Reviews

THE PRIMARY LUNG FOCUS OF TUBERCULOSIS IN CHILDREN. By DR. ANTON GHON, o.ö. professor of pathological anatomy at the German University in Prague. English edition, authorized translation by D. BARTY KING, M.A., M.D. (Edin.), M.R.C.P. (Lond and Edin.), assistant physician to the Royal Hospital for Diseases of the Chest, London. With 72 text illustrations, 1 black and 1 coloured plate. London, J & A. Churchill, 7 Great Marlborough Street, 1916.

Of all the subjects of discussion in connexion with tuberculosis in early life, none has demanded more thought and investigation than the source of the infection and its portal of entry into the system. The question is not merely an academic one but is of much practical importance. One set of pathologists, chiefly those in the English and Scotch schools, believes that the bovine type of bacillus infecting the milk supply is a common cause of the disease in infancy, and that the portal of entry is through the alimentary tract, while the other group, including the French, German, and the majority of American pathologists, believes that the human type of bacillus in the very large percentage of cases is the invading organism, and that the portal of entry is almost invariably the lungs. At present the evidence is extremely contradictory. Von Pirquet in a recent article on tuberculosis in infancy, basing his conclusions on 1,060 autopsies by Albrecht, and 189 by Ghon, states that the pulmonary portal and the human bacillus comprise over 98 per cent. of the total infections, while Mitchell in Edinburgh, after careful investigation of the cases met with in that district states that in 90 per cent. of his cases the bacillus was of the bovine type.

The contradictory character of these investigations can only be explained by the frequency of grave tuberculous disease in cattle in different countries and the character of the milk supply. This book, translated by Dr. Barty King, of London, gives a very excellent statement of the pathological findings met with by Dr. Ghon in the pathological department of the German University of Prague. It is well worth careful study by all interested in the

study of tuberculosis in infancy and childhood. It is clearly written and well illustrated.

THE PRINCIPLES AND PRACTICE OF SURGERY. By RICHARD WARREN, M.D., M.Ch. (Oxon.,) F.R.C.S., assistant surgeon and teacher of clinical surgery at the London Hospital. Two octavo volumes of about 700 pages each, with 505 original illustrations. Lea & Febiger, Philadelphia and London, 1916. Price, \$7.50 net.

These are two attractive volumes of convenient size, good print and well illustrated. The chapter on bacteriology and inflammation and repair are of especial interest at this time when our views and theories are being severely tested and tried out. These are carefully written, opinions are clearly expressed, and the illustrations are good. The reader can in these chapters get a good sane expression of bacteriology as understood to-day. The chapter on fractures is excellent. Bone repair, bone grafting and the different methods of handling fractures are fully discussed and illustrated. The recent advances in bone and joint surgery are dealt with fully and with a wise conservatism.

On some questions of immediate surgical interest the author has remained silent. One such is the employment of salvarsan in actinomycosis and in blastomycosis which seem, in some instances to have been of distinct value. Another is the question of splenectomy in some of the hæmolytic anæmias—a procedure now being tried out in Canada and in the United States, with seeming advantage. Taken as a whole, the work is a credit to British surgery which it distinctly represents. It is to be commended to surgeons and to students. The surgery of the blood vessels, thorax and abdomen receive full consideration.

AUTOPLASTIC BONE SURGERY. By CHARLES DAVISON, M.D., professor of surgery and clinical surgery, University of Illinois College of Medicine; and FRANKLIN D. SMITH, M.D., clinical pathologist to University Hospital, Chicago. Octavo, 369 pages, with 174 illustrations. Lea & Febiger, Philadelphia and New York, 1916. Price, \$3.50 net.

A book of much more than ordinary interest. Few subjects are attracting more attention at present than the many questions involved in the recent advances in bone surgery. The author here presents the recent views, together with a short but remarkably

clear and terse history of bone transplantation. The part played by the periosteum receives full consideration. Everyone feels that it is very desirable to avoid the use of non-absorbent bone plates and screws, and the author shows how in many cases of fractures requiring the open method of treatment they can substitute the autoplasmic bone graft. We predict for the authors a very wide sale of this little book. The style is attractive and the illustrations are clear.

EMERGENCY SURGERY. By JOHN W. SLUSS, A.M., M.D., associate professor of surgery, Indiana University School of Medicine. Third edition, revised and enlarged with 685 illustrations, some of which are printed in colours. Publishers, P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia, 1915. Price, \$4.00 net.

It sometimes seems a little remarkable that more books of this class are not published. The author of the present volume deals with acute surgery, the kind of surgery that practitioners are often called upon to practise. Wounds, fractures, dislocations, burns and scalds, the acute abdomen, etc., are dealt with very clearly, and in a most attractive style. The illustrations possess more than ordinary merit. To the student and general practitioner it will be found to be a definite aid. A work of this kind can be easily and quickly referred to and the desired information obtained without wading through pages that possess comparatively little interest. The book is of convenient size and the print is clear and distinct.

A MANUAL OF SURGICAL ANÆSTHESIA. By H. BELLAMY GARDNER, M.R.C.S., L.R.C.P. (Lond.), honorary anæsthetist to the King George Hospital. Second edition. London: Baillière, Tindall & Cox, 8 Henrietta Street, 1916. Price 7s. 6d. net.

This little book of slightly over two hundred pages is a most useful contribution to the literature of this subject from the standpoint of both the student and the practitioner. The general plan of presentation of the subject is admirable, the earlier chapters on the condition and preparation of the patient, pathological conditions, the choice of an anæsthetic, etc., leading up naturally and logically to the consideration of the general anæsthetics themselves. Then follows the consideration of anæsthetics for special operations and finally the treatment of the ordinary after-conditions and emergencies. A splendid series of illustrations adds to the value of the work.

MODERN ASPECTS OF THE CIRCULATION IN HEALTH AND DISEASE.

By CARL J. WIGGERS, M.D., assistant professor of physiology in Cornell University Medical College. Octavo, 378 pages, illustrated with 104 engravings. Cloth, \$3.75 net. Lea & Febiger, publishers, Philadelphia and New York, 1915.

This book or monograph as the author has styled his work is divided into three sections, which bear these titles—the physiology of the circulation, the graphic methods for the clinician, and the diseases of the circulation. Inasmuch as *modern aspects* are dealt with, the chapters devoted to these subjects contain matter which attracts the advanced worker in the field, while instructing the diligent student of any class in medicine. Obviously one finds much that has to do with special technique, but Dr. Wiggers in the third section of his monograph succeeds in showing how the various advanced methods of investigation serve generally to enhance the value of simple diagnostic criteria—giving them in many instances a clearer meaning. While reflecting many of the opinions of the best modern authorities on the circulation, this work sets forth the author's original investigations at many points, giving the work more than a touch of originality. The text and the illustrations are very clear. The book will be best appreciated by those, who having already acquired some familiarity with the graphic method of studying the circulation, are anxious for further information

DISEASES OF THE SKIN. By HENRY H. HAZEN, A.B., M.D., professor of dermatology, Georgetown University. 230 illustrations, including 4 coloured plates. St. Louis: C. V. Mosby Company, 1915.

This book is written for students and seems to be a compilation from the various larger text-books. It is really a synopsis of diseases of the skin and is well illustrated. It does not profess to treat of the rare diseases. Many of the illustrations are taken from coloured patients and hence are not so useful here in the north as farther south. The work commences with the anatomy and physiology of the skin, etiology, symptomatology, pathology, diagnosis and treatment, and then takes up the various diseases of the skin in the different groups, such as congenital, due to irritation, infection, parasites, etc. The various diseases of the skin are dealt with in a concise and clear way and will prove useful to the busy man and the student overburdened with the multitudinous subjects now required in a medical course. This book cannot, however, replace the larger works even for students, but it is "multum in parvo."

Books Received

The following books have been received and the courtesy of the publishers in sending them is duly acknowledged. Reviews will be made from time to time of books selected from those which have been received.

INTERNATIONAL CLINICS: A quarterly of illustrated clinical lectures and especially prepared original articles on, treatment, medicine, surgery, neurology, pædiatrics, obstetrics, gynæcology, orthopædics, pathology, dermatology, ophthalmology, otology, rhinology, laryngology, hygiene, and other topics of interest to students and practitioners. By leading members of the medical profession throughout the world. Edited by H. R. M. Landis, M.D., Philadelphia, with the collaboration of CHAS. H. MAYO, M.D., and others. Vol. I. Twenty-sixth series, 1916. Philadelphia and London: J. B. Lippincott Company.

ELEMENTARY BACTERIOLOGY AND PROTOZOOLOGY FOR THE USE OF NURSES. By HERBERT FOX, M.D., director of the William Pepper Laboratory of clinical medicine in the University of Pennsylvania. Second edition, revised and enlarged, illustrated with 68 engravings and 5 coloured plates. Lea & Febiger, Philadelphia and New York, 1916.

PULMONARY TUBERCULOSIS. By MAURICE FISHBERG, M.D., clinical professor of tuberculosis, University and Bellevue Hospital Medical College; attending physician, Montefiore Home and Hospital for Chronic Diseases, New York. Octavo, 639 pages, with 91 engravings and 18 plates. Cloth, \$5.00 net. Lea & Febiger, publishers, Philadelphia and New York, 1916.

A NEW TREATMENT FOR GONORRHOEA. By CHARLES RUSS, M.B. (Lond.), F.R.C.S., L.R.C.P., physician in charge of the electro-therapeutic department, The Male Lock Hospital, London. Publishers: H. K. Lewis & Company, Limited, 136 Gower Street, London, W.C., 1916. Price, 3s. net.

TREATISE ON FRACTURES. By JOHN B. ROBERTS, A.M., M.D., F.A.C.S., professor of surgery in the Philadelphia Polyclinic and College for graduates in medicine; and JAMES A. KELLY, A.M., M.D., attending surgeon to St. Joseph's, St. Mary's, and St. Timothy's Hospitals. 677 pages with 909 illustrations, radiographs, drawings and photographs. Philadelphia and London: J. B. Lippincott Company, 1916.

EDWARD JENNER AND VACCINATION. By PROFESSOR D. FRASER HARRIS, M.D., D.Sc., Dalhousie University, Halifax. Reprinted from the *Journal of Education*, April, 1916.

MODERN MEDICINE AND SOME MODERN REMEDIES: PRACTICAL NOTES FOR THE GENERAL PRACTITIONER. By THOMAS BODLEY SCOTT, with a preface by SIR LAUDER BRUNTON, Bart., F.R.S. 159 pages. Publishers: H. K. Lewis & Company, Limited, 136 Gower Street, London, W.C., 1916. Price, 4s 6d. net.

Miscellany

REPORT FROM THE LABORATORY OF NO. 3 CANADIAN GENERAL HOSPITAL—McGILL

THE laboratory of No. 3 Canadian General Hospital—McGill—was equipped with one chief idea in view; that it might be of assistance in every way possible to the clinician.

Situation. Two rooms in the operating hut have been set aside for laboratory work, one, next to the x-ray rooms, is used for a clinical laboratory, the other, next to the operating room, is used for bacteriology and pathology. Of the two rooms, the one used as a clinical laboratory is more adaptable for laboratory work. It is larger and has more light. The smaller room was selected for bacteriology and pathology for the reason that the vibrations caused by the engines used by the x-ray department made finer microscopical work difficult.

Equipment. Originally each room was equipped with a sink and a cold water tap. One room had in it—one cabinet, one desk, and two shelves. The fixed equipment, as it now stands, was for

the greater part put in by Captains McKim and Malone, and myself. While this equipment is somewhat crude in appearance, it answers the purpose for which it was intended. The technical equipment as selected has been found to meet the demands made of it. The greater part of this equipment was furnished as an issue from the Canadian Government but certain of it, all the microscopes save two, were purchased by the officer commanding from a fund presented to him by friends of the unit. The extra microscopes have made it possible to furnish each medical ward with a microscope of its own. The laboratory has supplied each of these wards with a complete blood counting tray. By this arrangement, blood counts and stains of blood films can be made in the wards without the inconvenience and loss of time necessitated by a trip to the laboratory.

Recently a hot water tap has been put in each laboratory.

Clinical Laboratory. This laboratory contains all the technical equipment necessary for the satisfactory examination of the materials sent to it, and I am informed by the clinicians that the work done in it compares favourably with that done in a well equipped laboratory in civil life.

The routine work of the clinical laboratory is done for the most part by the ward masters, who are either recent graduates in medicine or students in their final years. Such an arrangement has at least two advantages: it relieves the medical officers in charge of the wards from much clinical laboratory work, thus giving them more time available for the study of the cases under their care, and it gives the ward masters certain definite responsibilities. This work done under the direction of an experienced laboratory man would seem to be as trustworthy as if the medical officers had done it themselves.

We are prepared to do, and are doing—routine examinations of urine, including quantitative analysis; gastric analysis including quantitative examinations, complete sputum examinations; examination of fæces including the examination for occult blood; blood examinations including hæmo-globin estimations and differential cell counts. The above examinations here, as in many civil hospitals, have now become a definite part of the hospital work. We are prepared to make more complicated clinical laboratory tests when the emergencies arise.

Besides the assistance rendered to the clinician, which we have always kept foremost in our minds, there have been a number of interesting observations made in the clinical laboratory. Among

them I will mention the following: the frequency of albumen in the urine of the soldiers under your care. One case is worthy of especial mention on account of the very high per cent. of albumen found in his urine. Several cases of infection with malarial parasites have been observed. The interest in these cases lies, not so much in the mere presence of the malarial organisms as in the fact that certain of the infected soldiers had never been outside of England before the present war.

The following table which represents the work done in the clinical laboratory during September, will give some idea of the amount of work that has been done there. This does not include any examinations made in the wards where an average of three blood examinations a day are made.

TABLE FOR SEPTEMBER

Number of examinations of urine.....	650.
Number of examinations of blood.....	89 + 90 = 179.
Number of examinations of fæces.....	20.
Number of examinations of sputum.....	25.
Number of gastric content test meals.....	12.

The Bacteriological and Pathological Laboratory. Two phases of bacteriology have received our special attention, the diagnosis of the type of the infecting organism by means of direct smears and the examination of cultures. We have met with considerable difficulty in the examination of cultures for the reason that many of the infecting organisms are anærobic, practically always in impure culture. Anærobic work offers difficulties even in a well equipped laboratory in civil life.

We realize the difficulties and possibilities of mistakes of diagnosis from direct smears, especially when we are dealing with infecting organisms which are more or less unfamiliar to us. In so far as we can learn, we have not advised conservative treatment at the sacrifice of a life or even a limb, and we have been fortunate enough to see more than one case of "gas infection" of the tissues detected bacteriologically and operated upon in time to save both limb and life.

Our present idea, which may at any time be changed, in regard to the bacteriological study of the wounds inflicted in this war, may be briefly summarized as follows: practically all wounds inflicted by shrapnel are heavily infected. On the other hand one not infrequently sees sterile wounds inflicted by bullets. It seems

to us that many of the organisms found in the wounds are of comparatively low virulence and that not infrequently these organisms grow in the necrotic tissues lining the track of the wound, and do not spread into the more nearly normal tissues beyond.

The presence of bubbles of gas escaping from a wound, does not of necessity mean the presence of the "gas bacillus", and the presence of these organisms in the discharges does not necessarily mean infection of the tissue with them any more than the presence of tubercle bacilli in a lymph node means the infection of the tissues about this node.

Typhoid Group. In so far as the opportunity allowed we have studied certain aspects of this group. The general outline of this work has already been presented to you and at a later date I will furnish you with the result of the work now in hand. All the cases of infection with members of the typhoid group, where an opportunity was given us to examine them, were diagnosed before they were sent to the Isolation Hospital.

Special Cases. There are two series of cases that I will refer to briefly—lesions of the knee joint in wounds in and about this region, and gun shot wounds of the pleural cavity. Bacteriologically, the gun shot wounds about the knee fall into two groups, (a) where the injury involves the knee joint itself, either by the direct entrance of a bullet or shrapnel into the joint, or (b) where there is a traumatic lesion of the knee without actual penetration of the joint. The former cases have, as a rule, shown infection with organisms similar to those in the tissues about the knee. The latter, those where the knee joint was not penetrated by the foreign body, bacteriologically have remained, in most cases, sterile. From one case of bullet wound of the knee joint *B. coli* was recovered in pure culture. I have not seen this organism in pure culture in any other wound in my experience in this war.

Thorax Cases. We have made a bacteriological and cytological examination of a number of these cases. Most of them are sterile. One has been of especial interest—a case infected with an anaerobic bacillus. This infecting organism was found in the smears from the fluid removed and has been cultivated in pure culture. One interesting point in this case was the very active phagocytosis of the organisms.

Special Examinations for the Chief Surgeon. We have made certain bacteriological examinations for Lieut.-Colonel Elder of materials used in the operating room and in no instance have we found any evidence of infection of the material given us. In these examinations both aerobic and anaerobic cultures were made.

We have recently exposed plates in various parts of the operating room and have studied the organisms recovered. The number and kind of organisms per plate exposed during the working hours of the operating room compare favourably with an operating room in civil life. We have also examined the sweepings from the floor, taken after a series of operations, none of the cultures showed the "gas bacillus".

The comparatively low count of bacteria recovered from the exposed plates may in part be due to the dressing used on the floor.

Mosquitoes. We have not made a careful survey of the mosquitoes of this district but we have examined a few that have come to us. None of these belong to the malarial bearing mosquitoes. If the opportunity presents itself, we hope to make a more careful study of this subject.

Vaccines. Soon after the laboratory was opened, we notified the medical officers that we carried certain stock vaccines and were prepared to make autogenous vaccines when requested. A number of cases have already been treated with, on the whole, good results.

Harvest Mites. There recently occurred among the men of the unit, cases of an irritating skin lesion. We were able to find in several of them a very small mite, commonly known as the Harvest Mite.

Post Mortem Examinations. We have held a post mortem examination on most of the cases that have died in the wards of this unit. In so far as possible, these post mortems have been done at a time most convenient to the medical officers under whose care the case was. By this means we have tried to carry on the post mortem so that the greatest benefit to all concerned would be derived.

LAWRENCE J. RHEA,

Captain C.A.M.C., No. 3 Canadian General Hospital—McGill.

Obituary

THE following appreciation of the late Dr. Robert Morrison Curts has been received from Dr. H. B. Anderson, of Toronto:

Among the many Canadian medical men who have attained positions of eminence in the United States, there have been few who have gained such a measure of success at such an early age, and so entirely by his own efforts as the late Dr. Robert Morrison Curts, the notice of whose death, on April 16th, came as a great shock to his many friends in Ontario. Dr. Curts was born in Ontario in 1871, his father being a prominent clergyman. He was a student at Trinity Medical College, and graduated at Trinity University with the class of 1892. He was considered a good student, and was one of the most popular and highly esteemed members of his class. After graduation Dr. Curts began to practise in Paterson City, New Jersey, where his personal magnetism, courageous character and sound clinical judgement soon attracted the favourable notice of both his colleagues and the public. He became recognized as one of the most eminent surgeons practising in the state, being organizer and first president of the Surgical Society of New Jersey. At the inauguration of the American College of Surgeons he was not only elected to fellowship, but has served on the Board of Governors of the Association since its formation. He was also a past president of the Passaic Medical Society. In addition to the work which he accomplished in his profession, he took an interest in civic affairs, and was also a member of many fraternal and social organizations. Dr. Curts had been in poor health for some months, and was operated on on February 8th last, for abscess of the liver. Hopes were entertained at first for his complete recovery, but he suffered a severe relapse which eventually terminated in his death on April 16th. He was married seventeen years ago to Miss Clare Wilson, of Sussex, N.Y., who, with three children, survives him. While attaining an eminent position in the neighbouring republic, he always remained a true Canadian in spirit, and at the outbreak of the war it was a great disappointment to him that his failing health did not permit of his offering his services to the Canadian Army Medical Corps.

The following is taken from an appreciative editorial reference in the Paterson press: "Eminent though he was in his profession,

those who knew him best will remember him as a widely read and cultured gentleman. There will not be spoken to-day a single unkind word about Dr. Curts. No weakness will call for apologies from his friends. No short-comings will have to be overlooked by those who loved him. No explanations will be made for any weaknesses of character, for his character was beyond reproach, and his professional standing of the highest."

The writer of this notice knew him intimately and can readily understand the above appreciative words—his reputation and career in active practice being a consistent evolution of the promise of his student days.

DR. HORATIO C. BURRITT, of Toronto, died April 21st. He was born at Smith's Falls, Ontario, in 1840, and was educated at Bishop's College, Lennoxville, and at McGill University, where he graduated in medicine in 1863. Dr. Burritt was assistant surgeon at the Lincoln General Hospital, Washington, D.C., during part of the American Civil War. Later he went into practice at Smith's Falls, then at Morrisburg, at Peterborough, and, in 1882, at Toronto, where he continued to practise until a few months ago.

DR. J. OSCAR PILON, of Rosemount, Montreal, died April 22nd, after a brief illness, at the early age of twenty-eight years. He leaves a widow and child.

DR. FREDERICK TOWNSEND died at Sault Ste. Marie, Michigan, on May 4th. He was born at Brampton, Ontario, in 1868, and graduated from the University of Toronto. After taking a post-graduate course at the University of New York, Dr. Townsend was appointed to the Chair of Anatomy in the Detroit College of Medicine. In 1898 he entered into practice with his brother, the late Dr. Wesley Townsend, at Sault Ste. Marie.

DR. W. A. CHRISTIE died at Montclair, New Jersey, on April 29th, in the fifty-fifth year of his age. Dr. Christie practised in St. John, New Brunswick, until about two years ago when he went to New Jersey. He was house physician at the General Public Hospital, St. John, for some years but was obliged to give up the position on account of ill health. He afterwards went into private practice.

DR. D. H. LANCASTER, of Culloden, Ontario, died April 23rd, in the seventy-ninth year of his age.

DR. EGERTON C. DAVID, of Picton, Ontario, died at the Rochwood Hospital on April 20th, in the sixty-seventh year of his age. Dr. David was a graduate of the University of Ann Arbor, Michigan.

DR. ERNEST B. C. HANINGTON, of Victoria, British Columbia, died suddenly May 10th. Born at Shediac, New Brunswick, in 1851, Dr. Hanington was the son of the late Honourable Daniel Hanington, president of the legislative council of New Brunswick. After graduating from McGill University in 1875, he became medical superintendent of the General Public Hospital at St. John, New Brunswick. Three years later he went to British Columbia as medical officer of the Canadian Pacific Railway between Boston Bar and Lytton, and shortly afterwards went into practice in Victoria. Dr. Hanington leave a widow, one daughter, and two sons, Dr. J. W. B. Hanington, who is in West Africa, and Dr. Daryl Hanington who is attached to the British Columbia Hospital at Salonica.

DR. ANGUS MCKAY, of Ingersoll, Ontario, died May 7th, in the sixty-fourth year of his age. Dr. McKay was born in the township of North Oxford, near Dickson's Corners. He graduated from the Royal College of Physicians, Edinburgh, and for some time was surgeon in the British Marine Service. On his return to Canada he went into practice at Ingersoll, in partnership with the late Dr. Scott. In 1886, Dr. McKay was elected to represent the south riding of Oxford in the provincial parliament and at one time was Liberal Whip in the legislature. Municipal honours also came to him and in 1910 and 1911 he was elected Mayor of Ingersoll. As a practitioner he was beloved and respected and his death is greatly regretted.

DR. E. M. PATERSON, of Oakland, California, died at the age of seventy-two. He was born at Pictou, Nova Scotia, in 1844 and practised for a short time in Fredericton. At one time he was a member of the Council of Medical Examiners for New Brunswick. He graduated from the Harvard University Medical School in 1871.

DR. W. J. TEASDALE, of London, Ontario, died May 17th, in the fifty-sixth year of his age. He was born at Markham, near Toronto, and graduated from the University of Toronto. For the

past twenty-two years Dr. Teasdale had been a member of the London Board of Education.

LIEUTENANT-COLONEL JAMES ROSS, M.D., C.A.M.C., died suddenly May 8th, at his residence at Halifax. He had attended to his military and civilian duties during the day and, apparently was in the best of health, death being due to apoplexy. Lieutenant-Colonel Ross, who was in the fiftieth year of his age, was the son of the late Senator William Ross, of Halifax. He graduated from McGill University in 1890, and went into practice in his native city. He was a specialist in diseases of the skin and enjoyed a large practice. He had been connected with the Canadian Militia for many years and was Lieutenant-Colonel of the Stretcher Bearer Corps of the Canadian Army Medical Corps. He had been on military duty since the commencement of the war and had volunteered for service overseas.

It was stated in the May issue of the JOURNAL that Dr. Howard Jamieson, of Campbell River, British Columbia, died on April 9th. The date should have been April 14th, 1916.

News

MARITIME PROVINCES

At the recent meeting of the Royal Society of Canada, held at Ottawa May 16th to 18th, Professor D. Fraser Harris, D.Sc., of the Chair of Physiology of Dalhousie University, was admitted a Fellow of the Society. Professor Bronson, of the Chair of Physics of the same University, was also admitted a Fellow of the Royal Society.

ONTARIO

THE following is the list of cases of contagious diseases reported in the province during the month of April: smallpox, 8 cases; scarlet fever, 185 cases, 1 death; diphtheria, 197 cases, 17 deaths; measles, 3,206 cases, 44 deaths; whooping cough, 140 cases, 14

deaths; typhoid fever 36 cases, 11 deaths; tuberculosis, 178 cases, 124 deaths; cerebro-spinal meningitis, 23 cases, 14 deaths. Fortunately, the epidemic of measles would appear to be dying out. It will be remembered that in March over five thousand cases were reported

According to the annual report of Dr Roberts, medical officer of health of Hamilton, 2,896 births occurred in that city during the year 1915, as compared with 2,121 in 1914. The deaths numbered 1,341 in 1915 and 1,284 in 1914. Reference was made in this report to the number of cases of measles and mumps that have occurred among soldiers.

DR. J. A. BOYD, of Guelph, has been appointed medical superintendent of the Kingston General Hospital in succession to Dr. M. F. Cogan, who retires on July 1st, next.

THE Lady Minto Hospital, at Cochrane is now completed. The formal opening took place on May 24th.

A BY-LAW is to be submitted to the people of Brantford this month for \$58,000, the sum required to pay off the debt on the new hospital building and to make certain necessary improvements to the hospital. The city council has already voted the sum of \$7,000 for this purpose.

DR. G. STERLING RYERSON, of Toronto, who recently retired from the presidency of the Canadian Red Cross Society in favour of Her Royal Highness the Duchess of Connaught, will henceforth devote his entire time to the practice of his profession.

A PUBLIC meeting was held in Brockville on April 19th to consider the possibility of installing a filtration plant in accordance with the recommendation of the provincial board of health. It was resolved that the necessary steps should be taken to build and instal a filtration plant, and that the city council should pass the necessary by-law to provide the funds required.

A HOSPITAL for the treatment of soldiers who have been "gassed" is to be built near the Mountain Sanatorium at Hamilton. The building will be provided by the Hamilton Health Association but the Daughters of the Empire will be responsible for the maintenance of the hospital.

A CAMPAIGN for funds was recently conducted by a Committee of the Women's College Hospital and Dispensary, Toronto, with the result that a sum amounting to more than \$41,000 was collected. It is hoped, ultimately, to collect \$120,000, which amount would enable the Committee to build a new wing, furnish and equip it, and pay off all indebtedness on the present hospital, which has accommodation for forty-nine patients, and which has grown out of a small dispensary first established in a mission building.

DR. W. S. VERRALL, of Vancouver, has been appointed to succeed the late Dr. B. E. MacKenzie as medical superintendent of the Toronto Orthopædic Hospital. Dr. Verrall is a graduate of the University of Toronto.

THE old General Hospital on East Gerrard Street, Toronto, is to be remodelled and converted into a base hospital.

QUEBEC

A HOME FOR INCURABLES is to be opened at Longue Pointe, Montreal. The money required for the establishment of this hospital has been provided by a committee of five ladies. It will be under the direction of the board of management of the Protestant House of Industry and Refuge.

THE gross proceeds of the one cent theatre tax in Montreal have amounted to \$67,187. Certain expenses for administration have to be deducted from this amount, leaving a sum of \$61,344 to be divided among the hospitals and charitable institutions. Thus, the five large hospitals, namely, Montreal General, Royal Victoria, Notre Dame, Hotel Dieu, and Western, will receive \$30,691.67 between them; the "special" hospitals will get \$20,448.74; and the charitable institutions, orphanages, etc., will receive \$10,204.07.

A SUM of \$60,150 was recently collected in Montreal for the purpose of paying off the deficit of the Western Hospital. As a result of the campaign the number of life governors was increased by one hundred and twenty, which will ensure a permanent increase in the revenue of the hospital.

MANITOBA

DR. JOHN HICKS has been appointed by the provincial government to succeed Dr. J. J. McFadden as superintendent of the Brandon Insane Asylum. Dr. Hicks was formerly assistant superintendent.

ALBERTA

A NURSES' home is to be built on the western side of the Calgary General Hospital and will be connected with the hospital by a passage. Accommodation will be provided for one hundred nurses.

DURING the week ending May 6th, a number of meetings were held in Calgary with the object of instructing mothers in the care of children, especially infants. Lectures were given on the care of infants, the prevention of infection, and other subjects of interest, and exhibits were arranged in different parts of the city.

DR. H. G. MACKID, of Calgary, has been elected an honorary life member of the St. John Ambulance Association in recognition of the valuable services rendered by him to the association. Dr. Mackid has been chief medical officer of the Alberta division of the Canadian Pacific Railway for many years.

At a recent meeting of the Calgary Hospitals Board, it was decided that immediate action should be taken to secure more accommodation for cases of infectious disease. The measles ward of the Isolation Hospital, was recently placed under quarantine for diphtheria, which has been prevalent in Calgary for the past few weeks.

SASKATCHEWAN

DR. A. A. MATHIEU has been appointed medical officer of health at Watrous.

DR. A. D. CAMPBELL, of North Battleford, has been appointed resident physician at the Provincial Hospital for the Insane. Dr. J. W. Stewart has been appointed medical officer of health in succession to Dr. Campbell.

MEDICAL COLLEGES

Dalhousie University

ON May 4th, Dalhousie University closed its winter session by a convocation—its fifty-second—held in the library at the new buildings at Studley. Khaki was much in evidence. Nine graduates in medicine received the degrees of M.D., C.M., namely, Karl Kenneth Blackader, of Hebron; James Albert Currie, of Port Morien; Alexander Taylor Godfrey, of Brooklyn, Queen's County; Arthur Hines, of Noel; Hartley William Kirkpatrick, of Gaspereaux Station; James Norbert Lyons, of Halifax; Louise Alberta Pennington, of Montreal; Robert Harvey Stoddard, of Jeddore; and Samuel Whitehouse, of Baltimore, Maryland. The following had received their degrees during the session: James Stanley Chisholm, of Halifax; Victor David Davidson, of Truro; and Lloyd Remington Meech, of North Sydney.

An interesting feature in this convocation was the conferring of the degree of LL.D. *Honoris Causa*, on Dr. D. A. Campbell, of Halifax, the founder of the "Campbell" Chair of Anatomy at the University. In presenting Dr. Campbell for the degree, Professor Fraser Harris, Dean of the Faculty of Medicine, said:

"Mr. President, the Senate of Dalhousie University welcomes this opportunity to ask you to confer upon Dr. Donald Alexander Campbell, senior member of the Faculty of Medicine, the highest honour which it is in its power to bestow.

"While the university is honouring ex-President Forrest and ex-Dean Weldon—representing respectively the studies in arts and in law—it feels that the appropriate time has come to acknowledge in this public fashion the conspicuous services rendered to the sister Faculty of Medicine by Dr. D. A. Campbell, himself a graduate in medicine of this university, its professor of therapeutics, and for many years a member of the board of governors. Dr. Campbell is acknowledged throughout Nova Scotia as a physician highly skilled in the diagnosis and treatment of disease, and as a consultant whose opinion is eagerly sought after; but it is not so widely known that he has more than once given freely not only of his time but of his means for the support of the Halifax Medical College, the organization which became the Faculty of Medicine of Dalhousie University, and which would have gone out of existence had not Dr. Campbell come to its aid. These things he did always in the most unostentatious and modest manner.

"But his generosity did not end here. After the death of his

only son, Dr. D. G. J. Campbell, Dr. and Mrs. Campbell endowed the chair of anatomy in this university and which, therefore, now bears their name.

"The appointment of a professor in the allied academic subject of pathology and bacteriology was also very largely due to Dr. Campbell's untiring efforts towards the expansion of modern scientific teaching of medicine in Nova Scotia. Therefore, Mr. President, the Senatus Academicus, bearing in mind his personal worth, his eminence as a physician, his prescient advocacy of measures calculated to promote and safeguard the public health of this province, his unwearied activity in furthering the highest interests of medical education in this city, has decided to ask you to confer upon Donald Alexander Campbell, doctor of medicine and master in surgery, the honorary degree of Doctor of Laws."

The summer session for medical students opened on May 1st. The students will graduate next December and will then be in a position to offer their services to the military authorities.

McGill University

The following resolution was recently passed by the University authorities: "That in view of the gravity of the present situation, military training shall be compulsory (for the duration of the war and while the University is without a gymnasium) during the first three years of his course for every British male student of the University who is declared fit by the medical officer."

Queen's University

THE following is the list of candidates who have received the degrees of M.D., C.M.: S. E. Burnham, M.B., of Woodrow, Saskatchewan; R. M. Cairns, M.B., of Ottawa; M. F. Coglon, M.B., of Kingston; J. S. Fitzsimmons, B.A., of Rockport, Ontario; P. R. Lee, M.B., of Gananoque; C. C. Ligoure, M.B., of Trinidad, British West Indies; W. H. McMillan, B.A., of Blenheim, Ontario; R. B. McQuay, B.A., of Foxwarren, Manitoba; L. W. Nixon, M.B., of Richmond, Quebec; W. V. Sargent, M.B., of Kingston; and D. J. Taitt, B.A., of Brooklyn, New York. The degree of M.B. has been conferred upon H. S. Angrove of Kingston; R. H. Angrove, of Kingston; T. D. Bennett, of Spencerville, Ontario; J. H. Blair, of Aneroid, Saskatchewan; M. G. Brown, of Moore's Mills, New Brunswick; W. G. Blair, of Perth, Ontario; W. E.

Brown, of Gananoque; T. F. Cartar, of Trinidad, British West Indies; R. A. Dowd, of Ottawa; W. H. Duffett of Adolphustown, Ontario; C. M. Finlayson, North Battleford, Saskatchewan; C. J. Carofalo, Syracuse, New York; W. H. Hicks, of Candiac, Saskatchewan; J. F. Houston, of Carleton Place, Ontario; O. E. Kennedy, of Quyon, Quebec; J. A. Key, of Dalston, Ontario; P. A. Leacy, of Lanark, Ontario; S. S. Lumb, of Bancroft, Ontario; Daniel Mahoney, of Toronto; M. J. Moher, of Cobourg, Ontario; J. H. Moxley, of Ottawa; R. R. MacGregor, of Bringston, Ontario; P. T. McIlroy, of Kingston; J. G. MacNeill, of St. Stephen, New Brunswick; William Sager, B.A., of Wolfe Island, Ontario; and C. S. Tennant, of Mallorytown, Ontario. Medal in medicine, H. S. Angrove, Kingston. Medal in surgery, W. H. McMillan, Blenheim (with honour of medal in medicine).

ARMY MEDICAL SERVICES

COLONEL MURRAY MACLAREN, C.M.G., has been appointed Deputy Director of the Canadian Medical Services at London in succession to Colonel Lorne Drum who will take up his duties as A.D.M.S. at Bramshott as soon as he has recovered from his recent attack of rheumatic fever. Colonel Wylde, of Montreal, will succeed Colonel MacLaren as commanding officer of No. 1, General Hospital. Colonel Shillington, of Ottawa, formerly A.D.M.S. at Bramshott Camp, will take Colonel Wylde's place in London.

THE decoration of C.M.G. has been conferred by His Majesty upon Lieutenant-Colonel Frederick Etherington, commandant of Queen's Military Hospital, Lieutenant-Colonel Samuel Hanford McKee, formerly in command of No. 1 Canadian Stationary Hospital and now second in command of the Westcliffe Hospital, England, and Major Evans Greenwood Davis.

THE following have arrived at Orpington and have taken up duty at the Ontario Hospital: Captains Aitken, Clark, Fallis, Greenwood, Thomas, Lane, McKay, Ryan, Hilker, Campbell, Crawford, Fripp, Gunn, Jamieson, Kennedy, Parr, Shenstone, Carson, Curry, Graham, Wilson, Jepson, Lawson, Richardson, H. Smith; Lieutenants Armstrong and G. Lucas.

THE King's Canadian Convalescent Hospital at Bushey Park

has been enlarged, and now has accommodation for three hundred patients. Colonel H. R. Casgrain, of Windsor, Ontario, is the commanding officer, and Captain Wickware, of Moose Jaw, is second in command. Captain Gordon, of Portage la Prairie, is adjutant.

THE following appointments are announced as having been made in England: Brigadier-General Geddes, professor of anatomy at McGill University, to succeed Sir Henry Mackinnon as Director of Recruiting. Colonel G. S. Rennie and Major F. W. Wilson, to be assistant directors of Canadian Medical Services at Shorncliffe. Captain Bowlby to be deputy medical director of embarkations. Captain Gordon S. Chown, of Winnipeg, to be advance department medical officer of the Canadian troops in France.

THE following promotions in the Canadian Army Medical Corps are announced: To be Colonel: Lieutenant-Colonels Wallace Scott, of Toronto, and T. R. Snider. To be Major: Lieutenant Charles William Buckley. To be honorary Major: Dr. C. J. Stewart. To be Captain: Lieutenants Graham, Hanna, Bonnycastle, and Wheeler; Sergeant Dowson, and Sergeant David Lazier.

THE following members of the Canadian Army Medical Corps have joined the Royal Army Medical Corps: Captain Herbert Maxwell, Lieutenants Trow, George Stewart, Lawrence Brains, Thomas Macknight, Ellis, Reynold, Robert McKey, John O'Donell, David McKenna, Harry Joyce and Nelson.

NO. 7 GENERAL HOSPITAL (Queen's) and No. 3 Stationary Hospital have left Egypt and are now reported to be stationed in France.

A CASUALTIES DEPARTMENT has been established in Toronto, with headquarters at the Military Building on Simcoe Street, where all matters concerning wounded or invalided soldiers belonging to Military Division No. 2 will receive attention. The work of the department will include medical attention both to soldiers who have returned from overseas and those who have been taken ill while in training preparatory to leaving for the front, and all questions of administration, pay, etc., as far as such men are concerned. This arrangement, it is thought, will prevent duplication and thus save

time. Captain Munn, D.A.D.M.S., has been appointed medical officer, but the work of the department will be under the general supervision of Lieutenant-Colonel F. W. Marlow, A.D.M.S.

CAPTAIN JOHN CHASSELS, R.A.M.C., is with the British relief forces in Mesopotamia. Dr. Chassels left Toronto with the University Hospital in April, 1915, as a private. On his arrival in England he was made lieutenant in the Royal Army Medical Corps and has recently been promoted to Captain.

ACCOMMODATION for soldiers suffering from tuberculosis is to be provided at the Moore Barracks Hospital, England, by the Folkeston branch of the Canadian Women's Club.

THE Western University Military Hospital is now in process of organization. It is under the command of Lieutenant-Colonel Edwin Seaborn, M.D. Its personnel will include Senior Major Clarence Brown, M.D., of the department of internal medicine, Western University; Junior Major J. Cameron Wilson, M.D., who recently returned from the front; Captain Ernest H. Young, M.D., assistant professor of psychiatry at Western University and superintendent of the London Hospital for the Insane; Captain James Moriarty, M.D., who has been attached to the staff of the Hospital for the Insane at Mimico; and Captain Frederick W. Luney, M.D., pathologist at the London Institute of Public Health.

LIEUTENANT E. R. OSLER, C.A.M.C., has been gazetted temporary Second Lieutenant in the Royal Artillery.

CAPTAIN F. R. NICHOLL, M.D., of London, Ontario, is now in training in Montreal and will leave shortly for the front with A Section of No. 2 Field Ambulance Corps.

THE following is the list of officers of No. 8 Stationary Hospital, the Saskatchewan Hospital Unit: Lieutenant-Colonel H. E. Munroe, of Saskatoon, officer in command; Majors J. F. Irving, of Yorkton, and P. D. Stewart, of Saskatoon; Captains Joseph Wark, of Moosomin, H. A. Craig, of Davidson, W. A. Harvie, of Regina, A. H. Armitage, of Saskatoon, M. A. Nickle, of Weyburn, J. E. Bloomer, of Moose Jaw, T. W. Sutherland, of Regina, C. M. Henry, of Yorkton, and Arnold Keay, of Regina; Honorary Lieutenant P. H. Salmond, of Regina, quartermaster; and Hon. J. H. Thompson,

of Moose Jaw. The unit is up to full strength and is expected to leave shortly for England. Its personnel includes twenty-seven nursing sisters and one hundred and nineteen men.

THE following have joined the Canadian Army Medical Corps: Dr. Pratt, of Stratford, Ontario; Dr. R. D. Sanson and Dr. Bishop of the Calgary General Hospital; Dr. Gauthier, M.P. for Gaspe; Dr. J. L. Seibert, of Stratford, Ontario; Dr. Egerton L. Pope, Winnipeg.

BRIGADIER-GENERAL A. C. GEDDES, M.D., has been appointed to succeed Sir Henry Mackinnon as director of recruiting. General Geddes occupies the Chair of Anatomy in the medical faculty of McGill University. He was recalled to England shortly after the war broke out.

CAPTAIN J. B. JUPP, C.A.M.C., of Woodstock, Ontario, has recovered from his recent illness and has returned to Canada.

CAPTAIN A. C. ARMSTRONG, C.A.M.C., of Palmerston, Ontario, is attached to the staff of No. 1 Canadian General Hospital at Etaples, France.

THE following medical officers of overseas battalions have been appointed: Major J. D. Frazier, chief surgeon of the Michigan National Guard and a Canadian by birth, of the 213th Battalion of the American Legion; Captain Steeves of Claresholm, Alberta, of the 13th Canadian Mounted Rifles; Captain J. F. James, of Sarnia, Ontario, of the 149th Battalion; Captain E. Z. Cooke, of the 206 Battalion; Captain A. Blais, of Edmonton, of the 233rd French-Canadian Battalion; Captain W. T. Abbott, of the Winnipeg General Hospital, of the 100th Battalion.

MAJOR J. A. DICKSON, of Hamilton, medical officer of the 91st Regiment Canadian Highlanders, has joined the Royal Army Medical Corps and has left for England.

LIEUTENANT NORMAN S. SHENSTONE, C.A.M.C., of Toronto, has been appointed assistant to Captain Irving H. Cameron, chief of the surgical staff of the Ontario Base Hospital at Orpington.

CAPTAIN EDWIN C. BEER, C.A.M.C., of Brandon, Manitoba,

has been appointed to the staff of No. 1 Canadian General Hospital, Etaples, France.

CASUALTIES

Killed in Action

CAPTAIN DOUGLAS WATERSTON, M.D., C.A.M.C., of Montreal. (No. 9 Field Ambulance, C.E.F.)

Accidentally Drowned

CAPTAIN NORMAN JAMES YELLOWLEES, M.D., C.A.M.C., of Toronto, attached to No. 4 Canadian General Hospital (University of Toronto Military Hospital). Accidentally drowned at Salonica.

Dangerously Ill

NURSING SISTER MABEL LINDSAY, C.A.M.C., of Ottawa.

Wounded

PRIVATE J. L. PARKER, M.D., C.A.M.C., of Aylmer, Ontario.
LIEUTENANT GORDON FERRIER, M.D., R.A.M.C., of Toronto.

CORRESPONDENCE FROM THE SEAT OF WAR

THE following is a copy of a letter, dated January 13th, 1916, from Captain A. H. Pirie, C.A.M.C., of No. 3 Canadian General Hospital, published in a recent number of the *Archives of Radiology and Electrotherapy*:

"The history of our present ground is not to be found in guide books, nor 'Peeps into Picardy.' There is an old man who lives near by who was porter for forty-one years on our present ground, and from him one can learn interesting details. He is one of those old faithful servants who survive when the old order passes away. He remembers when our hospital was nothing but fields and an Estaminet—or rather 'une Guinguette' stood beyond the Porte de la Ferme (i.e., the Northern Gate), with a walled garden behind it. The wall of the garden now encloses the former kitchen garden of the Jesuits, and the original Estaminet is the men's sleeping quarters. This property, named 'Marlborough,' at that time belonged to a rich Bourgeois known as the Capitaine de Capicure.

"In 1874 the Jesuit Fathers bought the place and the fields around, and Père Couplet founded and named it 'Ecole libre Notre Dame'; at the same time the north wing was built. The school

commenced on October 10th, 1878. The foundations of the south wing (most of which is now destroyed) were laid in 1876, and the building was completed in 1878. The wall all round the grounds was built at the same time, money being borrowed for the purpose to the extent of one million francs.

"The ruins now remaining included among other buildings, a beautiful chapel with fine paintings, carvings, statuary, and stained glass windows. These decorations and improvements were carried out from 1894 onwards by Père Coetlosquet. The Grotto, which stands in a clump of trees looking old enough to be a Roman remains, was put up by him twenty years ago. In the upper part of it was a beautiful statue of the Virgin, but this, along with all the other statuary, paintings and carvings, has been carried off, and now reposes in the Ecole de Notre Dame at Le Touquet, a suburb of Mouscron in Belgium. About three hundred boarders and one hundred outside pupils studied at the Ecole, and evidences of the good times they had can be seen from photographs of the Salle de Fêtes, which now forms our largest ward. It was then fitted up as a theatre, with massive curtains, and a background showing Boulogne in the distance. In the summer time, they had pageants and tableaux vivants out-of-doors on a large scale, with elaborate costumes and scores of actors, chariot races and sports of all kinds. All this passed away in 1902 when the Law of Separation came in. The State took over the school and the Fathers left the place. The famous Père de Coetlosquet is now at work in Madagascar, but the old pupils still meet once a year in the Salle de Fêtes to commemorate the glory of former days. The school continued under a layman for five years, the glory of former days having departed. In 1907 the fire took place, and since then demolition has gone on till to-day a few walls and a heap of rubbish remain.

"The place was insured for 2,000,000 francs; the State took half, and the other half was used to pay off the debt on the buildings. Since 1902 it was used as a State school, but since 1907 it has been practically empty till our predecessors occupied it.

"After the fire the government sold the place, and the Old Pupil's Society bought Marlborough. A speculator bought the rest. Orphans occupied Marlborough during August and September, before the Indians came.

"Such is the story that the old porter has to tell, and if you will sit and listen to him he will talk for hours about the old place and show you photographs of it at all stages of its growth, bloom

and decay. It was a sad day for him when he had to leave the old place, and his last wish is that he may be buried near it—if not in it.”

Canadian Literature

ORIGINAL CONTRIBUTIONS

L'Union Médicale du Canada, February, 1916:

- Les Sociétés de médecine Canadiennes-
Françaises à Montreal B. G. Bourgeois

L'Union Médicale du Canada, March, 1916:

- Le coeur chez les tousseurs J. E. Dubé
Tuberculose cutanée guérie par l'arséno-
benzol E. P. Benoit

The Western Medical News, March, 1916:

- Gas bacillus infection A. M. Fauntleroy
Address to Regina General Hospital Clinic J. C. Black

The Canadian Practitioner and Review, April, 1916:

- Pyelitis of pregnancy and the puerperium K. C. McIlwraith
Pituitary extract in obstetrics J. A. Kinnear
The Neuheim treatment as given at the
Glen Springs C. W. Lieb

The Canadian Journal of Medicine and Surgery, April, 1916:

- Treatment of club foot B. E. M'Kenzie

L'Union Médicale du Canada, April, 1916:

- La circulation hépatique et l'excrétion bil-
iaire E. P. Benoit
De l'influence de troubles gastriques sur
l'intelligence des écoliers A. K. Malouf
L'électrargol. Un cas de fièvre typhoïde
traité ce merveilleux agent O. Desjardins
L'urétrite blennorrhagique chronique
chez l'homme et son traitement N. Fournier

Dominion Medical Monthly, April, 1916:

The Medical Commission:

Orthopedic surgery	C. L. Starr
Medical conditions at the front	H. A. Bruce
Physical therapeutics	C. R. Dickson

The Public Health Journal, April, 1916:

Personal preparedness for disease prevention	D. B. Armstrong
The practising physician; his relation to public health administration	J. W. Trask
Field work of an Ontario District Medical Officer of Health	R. E. Wodehouse
Child welfare	J. Thomson
Sanitary conditions in rural schools . . .	T. J. McNally
European prison camps	B. W. Caldwell
Water supply on the march	C. H. Mellville
Pasteurization of milk	A. F. Cummings

The Canadian Practitioner and Review, May, 1916:

Endemic typhus fever in Toronto . . .	M. H. Haight.
A splint for drop wrist as devised by Dr. J. A. Sutherland Fairbanks, Alaska	F. C. Harrison.

Medical Societies

AMERICAN SECTION OF THE INTERNATIONAL ASSOCIATION OF MEDICAL MUSEUMS

THE ninth meeting of the American Section of the International Association of Medical Museums took place at the Army Medical School, Washington, D.C., on Monday, May 8th, being the day preceding the meeting of the Congress of American Physicians and Surgeons, at 10 a.m. and 2.30 p.m. Professor A. S. Warthin, of Ann Arbor, Michigan, was in the chair, and there was a good attendance.

The following officers of the American Section were elected for

the ensuing year: president, Professor O. Klotz, Pittsburg; first vice-president, Professor W. M. S. Coplin, Philadelphia; second vice-president, Professor A. E. Robertson, Minneapolis; third vice-president, Dr. D. S. Lamb, Washington, D.C.; councillors, Professor A. S. Worthin, Ann Arbor, Michigan; W. M. L. Coplin, Philadelphia; Howard Karsner, Cleveland; M. C. Winternitz, Baltimore; R. A. Lambert, New York; secretary-treasurer, Dr. Maude Abbott, Montreal; assistant secretaries, Drs. Joseph Kaufmann and W. W. Francis, Montreal.

An important discussion took place on the standardization of square glass museum jars and the problem of obtaining a source of supply of these under existing war conditions. It was decided to simplify the problem by reducing the large number of miscellaneous sizes now in use among museums to some eleven to sixteen sizes and a committee was appointed, consisting of Drs. Klotz, Winternitz, and Abbott, whose business it should be to approach local glass manufacturers on the one hand and members of the American Section of the Museums Associations on the other, and thus attempt to secure a suitable supply of the selected sizes, which it was felt should be obtainable in the United States as soon as the large demand which exists becomes definitely formulated.

A fine series of exhibits was on view from the Army Medical Museum (Major E. R. Whitmore and Drs. J. R. Scott and D. S. Lamb) Washington University Medical School, (Dr. H. Craig, original method of colour preservation), the McGill Medical Museum, Montreal, Dr. Carl Weller, of Ann Arbor, and various members of the American Association of Pathologists and Bacteriologists, including a series of reconstruction models of heart from human embryos, 2.4 mm. and 10 mm. long, showing (a) normal organ, (b) reversed torsion of ventricular bend, also specimens of cardiac anomalies, by F. T. Lewis, Boston, and M. E. Abbott, Montreal. This exhibition remained open for the benefit of the members of the American Pathologists Association during the three days of the Congress.

The following programme was presented, and supplied subjects for much interesting discussion of methods of technique and objects of research.

Museum Technique:

1. A new museum jar for the preservation of eye specimens. Henry Albert, Iowa City.
2. Concrete museum jars and other concrete containers for museum work. W. M. L. Coplin, Philadelphia.

3. Some suggestions for properly equipping a post-mortem room, illustrated. H. E. Robertson, Minneapolis.

4. The application of the methods of cross section anatomy to museum work, with photographs. W. M. L. Coplin, Philadelphia.

5. The use of the Lapidary's saw, and discussion of other methods of sectioning and polishing calculi. W. M. L. Coplin, Philadelphia.

6. A satisfactory method of preparing sections of teeth with the soft tissues in situ, with lantern demonstration, and illustrative specimens. Arthur T. Henrici, Minneapolis.

7. Mounting specimens under Petri dishes and clock glass. E. L. Judah, Montreal.

8. A mounting fluid for gross specimens in natural colours, with demonstration of illustrative specimens. Oskar Klotz, Pittsburgh.

9. The role of organic acids in preservation of museum specimens. H. E. Robertson, Minneapolis.

Microscopic Technique:

10. Substitutes for cover glasses. Carl V. Weller, Ann Arbor.

11. A modification of Mallory's aniline blue stain for connective tissue. Samuel R. Haythorn, Pittsburgh.

12. A comparison of staining methods used in the study of pathological lesions in the sympathetic ganglia, with lantern demonstration. Louis B. Wilson, Rochester.

13. The cytology of normal goat's blood, with lantern demonstration. Georgine Luden, Rochester.

Objective Presentation of Results of Medical Research:

15. An experimental investigation of laboratory stains derived from elderberry juice. A. S. Warthin, Ann Arbor.

16. Mature adipocere from pig and human subject with statement of complete chemical analysis (the first made). (*Proc. Am. Soc. Biol. Chem.*, 1916, III, 3, p. 12). R. F. Ruttan, Montreal. (By invitation.)

17. Demonstration of the types of lesion in the liver in chronic passive congestion, illustrated by gelatin plates, microscopic sections, and chart. R. A. Lambert, New York.

18. Study of an unusual case of congenital cystic kidneys of enormous dimensions. E. Latreille, Montreal.

19. Double monster of janus type (cephalo-thorocopagus

monosymmetros cyclops synotus). M. E. Abbott and J. Kaufmann, Montreal.

20. Congenital malformation: absence of left half of diaphragm, agenesis of left lung, liver in left thoracic cavity. A. S. Warthin, Ann Arbor.

21. Congenital anomaly of heart. Carl V. Weller, Ann Arbor.

22. Diagrammatic presentation of the respiratory exchange in two types of cardiac malformations. Walter M. Boothby, Boston, and Maude E. Abbott, Montreal.

NEW BRUNSWICK COUNCIL OF PHYSICIANS AND SURGEONS

THE annual meeting of the New Brunswick Council of Physicians and Surgeons was held at Fredericton, April 28th. Among those in attendance were Drs. M. L. Curren, A. F. Emery, Thomas Walker, Stewart Skinner, and W. W. White, of St. John; Dr. G. Clowes VanWart, of Fredericton; Dr. S. C. Murray, of Albert; Dr. T. F. Sprague, of Woodstock; and Dr. J. D. Lawson, of St. Stephen. The election of officers resulted as follows: president, Dr. S. C. Murray, of Albert; treasurer, Dr. A. F. Emery, of St. John; registrar, Dr. Stewart Skinner, of St. John; professional examiners, Drs. G. G. Melvin, W. E. Rowley, A. McAuley, William Warwick, T. D. Walker, J. S. Bentley, and W. W. White. Registration committee, Drs. W. W. White and A. F. Emery. Examining committee, Drs. W. W. White, T. D. Walker, and M. L. Curren. Laws Committee, Drs. G. C. VanWart, J. D. Lawson, and T. F. Sprague.

TORONTO ACADEMY OF MEDICINE

THE following is the President's Report of Council, submitted at the ninth annual meeting of the Academy of Medicine, Toronto, May 2nd, 1916.

This session the Council of the Academy continued the progressive and aggressive course inaugurated on the establishment of this Academy in the endeavour to advance and safeguard all the best interests of the Fellows of the medical profession in Toronto.

A determined effort was made to increase the membership by the inclusion of many excellent practitioners on the roll, and this

effort was not without success as fifty-three of those who made application were elected to Fellowship.

We greatly missed from the programmes our confrères now on active service, as many of them were most energetic in the scientific work of the Academy, but their absence only stimulated those left at home, who took up and maintained the high standard of the work of previous years. Notwithstanding the fact that eighty-three of our Fellows are overseas the average attendance at the stated meetings was one hundred and twenty-four.

The Programme Committee favoured the securing of outside talent for three of the regular meetings, and Dr. Manton, of Detroit, Dr. J. A. Fordyce and Dr. Snyder, of New York, agreeably accepted and satisfactorily instructed and entertained largely attended meetings with addresses and lantern demonstrations. We have already expressed our deep appreciation of their kindness in strengthening the bond of regard which exists in the profession of our countries in this time of "storm and stress." It is wise to have as guests charming men of "light and leading" from the United States—outside the circle of Toronto influence, to inspire us with the knowledge of our shortcomings and also a contentment with the home product.

The other regular meetings were of great interest, one on "War conditions," by the Vice-President, a second on matters vitally affecting the welfare of the profession—*re* the Medical Commission and the Workmen's Compensation Act, and a brilliant symposium on the subject of "Nephritis" and one on "Anæsthetics"—completed the series of seven stated meetings.

The Council did not entirely overlook one of the beneficial features which is part of the creed of the Academy, the gathering together of the Fellowship in social union. A garden party to which were invited all the Fellows and their ladies, an informal reception following one of the stated meetings, an official Academy dinner for all the officers of the organization, graced by the presence of the Lieutenant-Governor, and other entertainments, formed part of the Council's scheme to humanize, harmonize and fuse the Fellowship into happy unity.

Two committees were appointed by the Academy: the Hospital Supplies Committee, which will be fully reported upon by Dr. N. A. Powell, chairman; the Registry for Nurses, under the chairmanship of Dr. H. J. Hamilton.

The principle of the establishment of a Registry for Nurses was adopted by the Academy, and a Committee was named to

elaborate the essential details. In this connexion I may refer to the endeavour to establish more fully a professional comradeship between the trained nurses and the nursing sisters and the Fellowship as evidenced by the Council placing the Academy Building at the disposal of the military authorities for the funeral services in connexion with the late nursing sister Ross. From many sources we have learned, from the kindly comments of the nursing profession, how highly this action was regarded.

The Council Committees are:

Re Patriotic Relief—Dr. H. B. Anderson, chairman;

Re Medical Commission—Dr. A. J. Johnson;

Re Workmen's Compensation—Dr. Cotton, chairman;

Re Midwifery Question—Dr. E. E. King

The Milk Commission was discontinued.

The very valuable reports of these committees will be presented later, and I think you will agree with me in giving our warmest thanks to all the gentlemen who, without regard to personal convenience or time, have devoted their exceptional abilities to matters so important. I may not dwell upon these reports or delay the meeting by repetition. I recommend, however, that these various committees be re-appointed by the incoming Council. The chairman of the Library Committee will inform you of the able way in which Miss Charlton has played her part.

My words are idle things when referring to the efficiency of the honorary secretary and the honorary treasurer. That they have the full confidence of all is manifest by the unanimous voice in their reëlection to office, and they have many words of praise for the competent secretary, Miss Runciman.

The average attendance at the Council meetings was ten.

I have to thank the members of the Council for their brotherly cordial support, their painstaking work, and the uniform courtesy displayed, which made pleasant the year in office, and helped to bridge over my many limitations.

W. H. B. AIKINS,
President.

Report of the Special Committee *re* Patriotic Relief, submitted at the ninth annual meeting of the Academy of Medicine, Toronto.

The work for the past year has proceeded satisfactorily. With the lessened amount of unemployment, the advent of better times and greater assistance from the Patriotic Fund Association, the amount of work which the physicians have been called upon to do has been gradually decreasing from month to month.

Recognizing the great burden that was being undertaken by the profession and the tendency in some instances to imposition on the part of applicants for relief, the Patriotic Fund Association consented to a minimum fee of \$5.00 being charged in obstetrical cases. Dependents on the fund have been notified accordingly.

More recently the Patriotic Fund Association has concluded that it is no longer necessary for them to undertake to procure free services for their dependents from the medical profession, but that this matter may safely be left to the doctors themselves to look after through their own organizations.

I have again to record the ready response of the large majority of members of the profession to undertake their share of assisting in relief work, and the Patriotic Fund Association wish me to convey to them its appreciation of the "very patriotic, liberal and courteous manner, which the doctors have shown towards the necessities of the dependents."

I beg leave to call your attention to the "pegged map" of the city, showing the distribution of doctors who have volunteered for patriotic relief work. From this it will be seen that there is a dearth of volunteering physicians in some of the suburban districts, and Miss McColl, who is in charge of the Patriotic Fund Medical Bureau, asks that a further appeal be made to the doctors in Weston, Lambton, Swansea and the eastern districts, particularly in view of the advent of hot weather and the likely increase of morbidity among infants and children. She also suggests that the physicians giving free services should refuse to accept patients unless they apply through the Patriotic Fund Medical Bureau—unless at night or on Sunday when the office is closed—as in this way we would help to safeguard the interests of the doctors and lessen imposition.

I beg herewith to append statistical report from April 1st, 1915 to April 1st, 1916.

All of which is respectfully submitted.

H. B. ANDERSON,
Chairman.

TORONTO AND YORK PATRIOTIC FUND MEDICAL BUREAU REPORT
From April 1st, 1915 to April 1st, 1916

Number of physicians giving free services.....	196
Number of chemists giving free drugs.....	66
Number of cases reported to Bureau.....	2,350

Number of obstetrical cases reported to Bureau.....	807
Number of cases referred to physicians.....	1,430
Number of cases referred to hospitals.....	371
Number of Victorian Order nurses paid by Patriotic Fund.....	302
Number of practical nurses paid by Patriotic Fund.....	109
Number of housekeepers paid by Patriotic Fund.....	188
Number of St. Elizabeth nurses who gave services free to Roman Catholic patients.....	10
Number of visits of public health nurses.....	10,711

MONTREAL MEDICO-CHIRURGICAL SOCIETY

THE tenth regular meeting of the society was held Friday evening February 18th, 1916, Dr. F. A. L. Lockhart, president, in the chair.

The programme of the evening consisted of an address by Dr. David Linn Edsall, professor of clinical medicine at Harvard University, on "Some studies of respiration." For abstract, see editorial on page 527 of this JOURNAL.

The president in introducing the speaker gave a brief account of the work which Professor Edsall had done along these and other lines and outlined the different posts which the professor had held during his career. The address was illustrated by numerous slides of tracings of respiration under different conditions.

DISCUSSION: Dr. M. E. Abbott: I have followed this address with the deepest interest, the more so from the fact that I have just had the privilege of working for a month in the respiration laboratory of the Peter Bent Brigham Hospital under Dr. Boothby. I saw there some of the work mentioned to-night. I have followed Dr. Boothby in his work on Professor Krogh's method of calculating the rate of flow in the circulation by estimating the venous O_2 and CO_2 tension in the alveolar air, and have tried with him to apply this method to the study of several cases of congenital cyanosis, kindly placed at my disposal by Dr. Christian. I saw also the diagrammatic studies of Dr. Peabody's work on the administration of CO_2 in various pathological conditions, and have heard something of Dr. Porter's brilliant experimental surgery.

To me this address has therefore been of intense interest, and to every one who has heard it, I think, the study of the respiration must appeal as revealing an almost undiscovered country from the clinical standpoint, a study of which will yield much of the highest

practical importance. In regard to acidosis, especially the point which Dr. Edsall made that the estimation of the CO_2 in the alveolar air is not to be taken as an evidence of acidosis in all cases, I would like to say that this coincides with the work which I had the privilege of following in the Brigham Hospital Laboratory, and leads one to the conclusion that the study of this point, like that of any other symptom, must be carried out with a wider knowledge of the whole mechanism of respiration than the study of this symptom in itself can give, and that this is the more necessary, because, as Dr. Edsall has shown, it is a factor of great importance in the study of the subject of acidosis. I had the privilege this afternoon of going over with Dr. Harding the Palmer-Henderson test for alkali-tolerance carried out in the laboratory of the Massachusetts General Hospital, and it is very interesting to hear Dr. Edsall's remark on this. As I understand it, the alkali-tolerance test for acidosis, in some conditions, as nephritis for instance, does yield an earlier reaction than can be obtained from the test of a lowered dioxide tension in the alveolar air. Does this apply to other forms of acidosis? Does the acidosis of diabetes also give an earlier reaction with the alkali-tolerance test? I would also like to know in what way the acidosis of diabetes differs from the retention acidosis of nephritis?

Dr. W. S. Morrow: I feel that in common with most of the men here I am not in any way able to discuss a paper embracing so much new and original work as has been presented to us to-night by Dr. Edsall. I may say, however, that there are certain points in connexion with respiration which have been touched upon in this address and in which I have been very much interested, I would respecially refer to the subject of respiratory arrhythmia, of which Cheyne-Stokes breathing is an outstanding example. This is a subject which has not received as much attention as it deserves and there are many very interesting parallelisms between the arrhythmias of respiration and those of circulation. I remember many years ago being impressed by diagrams published by Dr. Kenneth Cameron of a case of heart block under his care. There was a striking resemblance between his graphic representation of the pulse and tracings of Cheyne-Stokes respiration. I have noticed a similar resemblance in the tracings of heart block published by other observers. It is interesting to note a period during which there is no pulse at all in certain forms of heart block followed by a gradual reappearance of the pulse which works up to a climax and disappears again very much as the breathing does in Cheyne-

Stokes respiration. I have been interested lately in seeing these two conditions associated in the same patient. I have a man dying of circulatory failure following anginal attacks who has developed dropsy and is at the present time approaching the termination of his illness. Yesterday for a certain period his pulse would beat eight times in five seconds and would then suddenly drop to half—four times in five seconds—representing, I have no doubt, partial heart block during which time there was no breathing. Then after the heart had beat in this way for a few seconds there would be a resumption of the active phase of Cheyne-Stokes breathing which would go on to its height when the heart would resume its normal rate of eight beats in five seconds. The active phases of Cheyne-Stokes breathing seemed to correspond with the periods of heart block in which the heart was beating at half its usual rate. In a study of the nervous mechanism of respiration I performed some years ago a good many experiments on animals involving the removal of the cerebral hemispheres and the administration of respiratory poisons, notably morphine. At present I have in press a series of tracings illustrating respiratory arrhythmias which I obtained while looking for other things. In one animal after every three or four normal respirations there occurred a premature inspiration which came distinctly earlier in the respiratory cycle than usual, and was very suggestive of an extra systole such as we see in cardiac arrhythmias. In some of these animals the respirations occurred in groups of two, or three or four, presenting very interesting parallels to the groups of extra systoles which we often see in cardiac arrhythmia. I have never had an opportunity of discussing these cases with any one working along these lines and I would be very glad to hear if Dr. Edsall can make any suggestions.

Dr. F. A. L. Lockhart: I think this address has been of very great interest to us all and Dr. Edsall need not have apologized for the technical character of the paper: it was of a most practical nature. One point, the question of fright in patients about to be operated on, interested me very much indeed. For the past ten years I have been in the habit of administering a sedative, such as hydroscine hydrobromate, atropine or morphine, and Dr. Edsall's remarks made me recall that previously I used to have a considerable percentage of cases in which we had a certain amount of respiratory trouble, but since we have been using these sedatives this has been practically absent, which fact, I think, bears out Dr. Edsall's remarks.

Dr. C. F. Martin: In conjunction with all those who have had the good fortune to hear this paper I would like to express my very great appreciation of Dr. Edsall's visit here; he has come here with his wide experience and his great clinical as well as experimental training and given us the benefit of the more recent work which is of such interest to all clinicians in the States as well as in England, and here we are just budding out in the same lines with Dr. Abbott's work on the respiratory mechanism, and hope that some good results will come of that. One lesson one gets from Dr. Edsall's work to-night in his remarks on the respiratory mechanism, and his experiments, and that is the remarkable adaptability of the respiratory mechanism to all varieties of abnormal treatment that I should think would have a very serious bearing on the experiment made. I was particularly interested in his remarks on Cheyne-Stokes respiration and about its frequency in people that are healthy and in those who have all variety of diseases; in many, of course, it has by no means a serious termination. It is very unfortunate that we have to have our therapeutic theories about strychnine dashed to the ground. Some years ago Dr. Edsall did the same thing when he proved that salt and water were about as nutritious as eggs, beef-tea, etc., in certain conditions and now our favourite drugs, upon which we had much faith, have been thrown out as useless.

Dr. Edsall: Dr. Morrow's statement about his "respiratory premature beats" interested me very much. The relation between the Cheyne-Stokes respiration and other sharp disturbances of respiration and heart block I have seen. In one case heart block would last for five minutes and complete apnoea at the same time, and once in this patient as long as eight minutes. He was reported "dead" many times. Dr. Wm. Pepper, Jr., got his heart eventually and reported a syphilitic lesion in the bundle of His. I am sorry if I seem an iconoclast in regard to certain pet drugs, but the more we go on with these studies the more they would indicate that in animals strychnine has more effect above the spinal cord than in human beings. I have not the slightest doubt that it has a remarkable effect upon the spinal cord but above that I do not think it has in human subjects. With regard to Dr. Abbott's remarks, the alkali tolerance does occur in diabetes before any evidence of acidosis occurs otherwise. Several years ago Friedrich Muller told me that he tested his diabetics for acidosis by "titrating the patient," giving phenolphthalein with alkali and determining how much alkali was needed to give a reaction for alkalinity in the

urine. The striking difference between acidosis in diabetes and in nephritis is that in diabetes it is a perfectly clear oxybutyric acid but in nephritis we do not know what it is. Palmer has made some attempts to determine what the acid is but has not yet been successful.

VANCOUVER MEDICAL ASSOCIATION

THE annual meeting of the Vancouver Medical Association took place on Monday evening, April 24th. The attendance was good. The officers elected for the year 1916-17 are: president, Dr. J. H. MacDermott; vice-president, Dr. E. D. Carder; secretary-treasurer, Dr. J. W. Ford; auditor, Dr. G. B. Murphy; editor, Dr. Frederick Brodie. Library Committee, Drs. J. J. Mason and S. B. Peele. Credential Committee, Drs. G. E. Seldon, W. F. McKay and W. D. Kennedy.

TWIN CITY MEDICAL ASSOCIATION

THE Twin City Medical Association was recently reorganized at a meeting which took place at Berlin, Ontario, when the following officers were elected: president, Dr. W. L. Hilliard; vice-president, Dr. G. H. Kalbfleisch; secretary, Dr. J. E. Hett; assistant secretary, Dr. F. E. Chapman; treasurer, Dr. T. H. Callahan. The question of remuneration to military medical officers was discussed and it was resolved that the Militia Department should be requested to increase the amount paid to such officers.

CALGARY MEDICAL SOCIETY

THE annual meeting of the Calgary Medical Society took place at the Palliser Hotel on April 4th, last. The election of officers for the year 1916-17 resulted as follows: president, Dr. J. L. Allen; vice-president, Dr. H. A. Gibson; secretary, Dr. A. E. Aikenhead; treasurer, Dr. W. J. Shipley, Executive Committee, Drs. A. I. McCalla, J. A. Anderson, and E. J. Madden. An interesting paper on "Treatment of wounds at the front" was read by the retiring president, Dr. W. A. Lincoln, and this led to a short discussion. The members of the society were invited to supper by Dr. Lincoln.